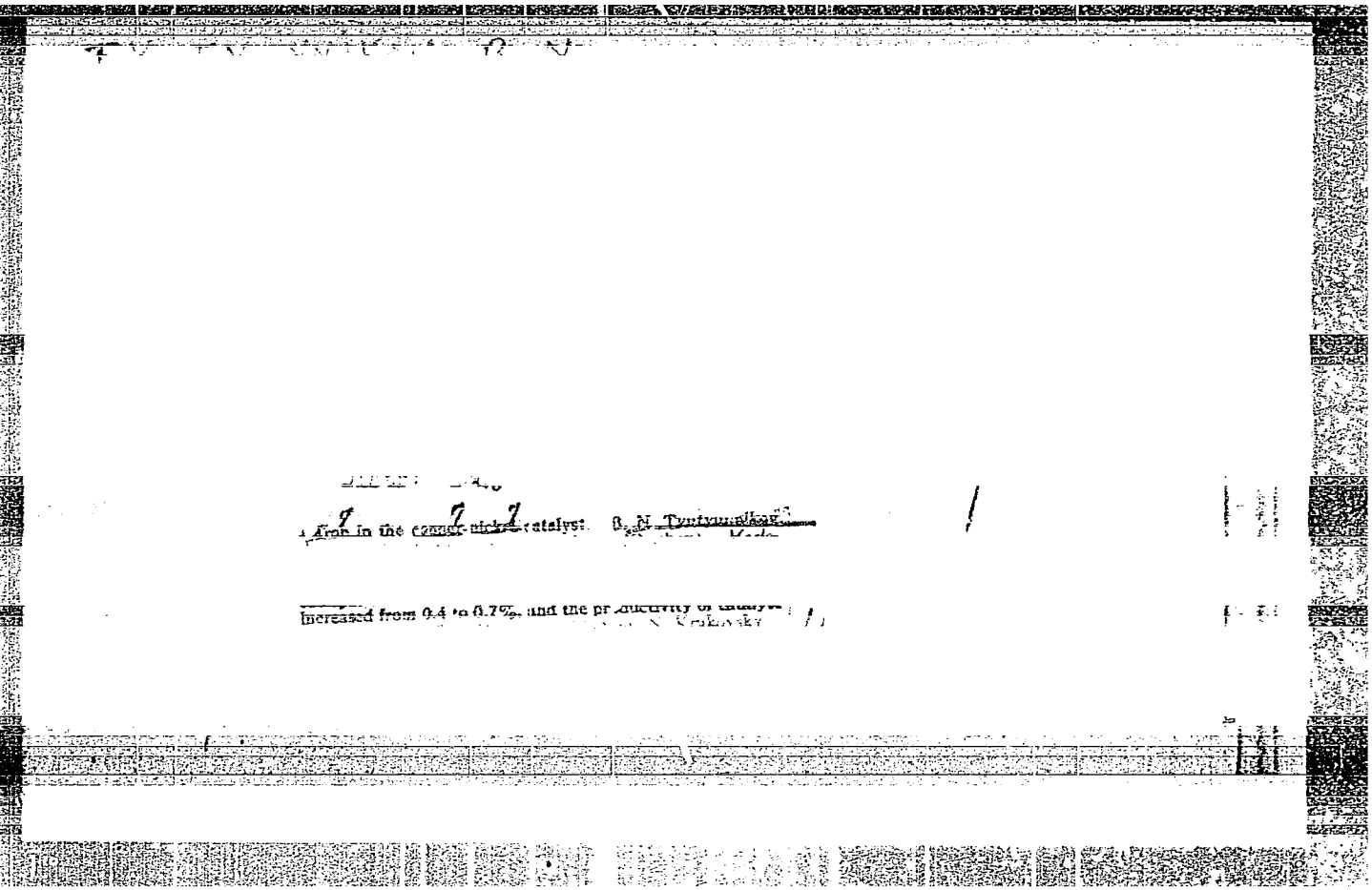
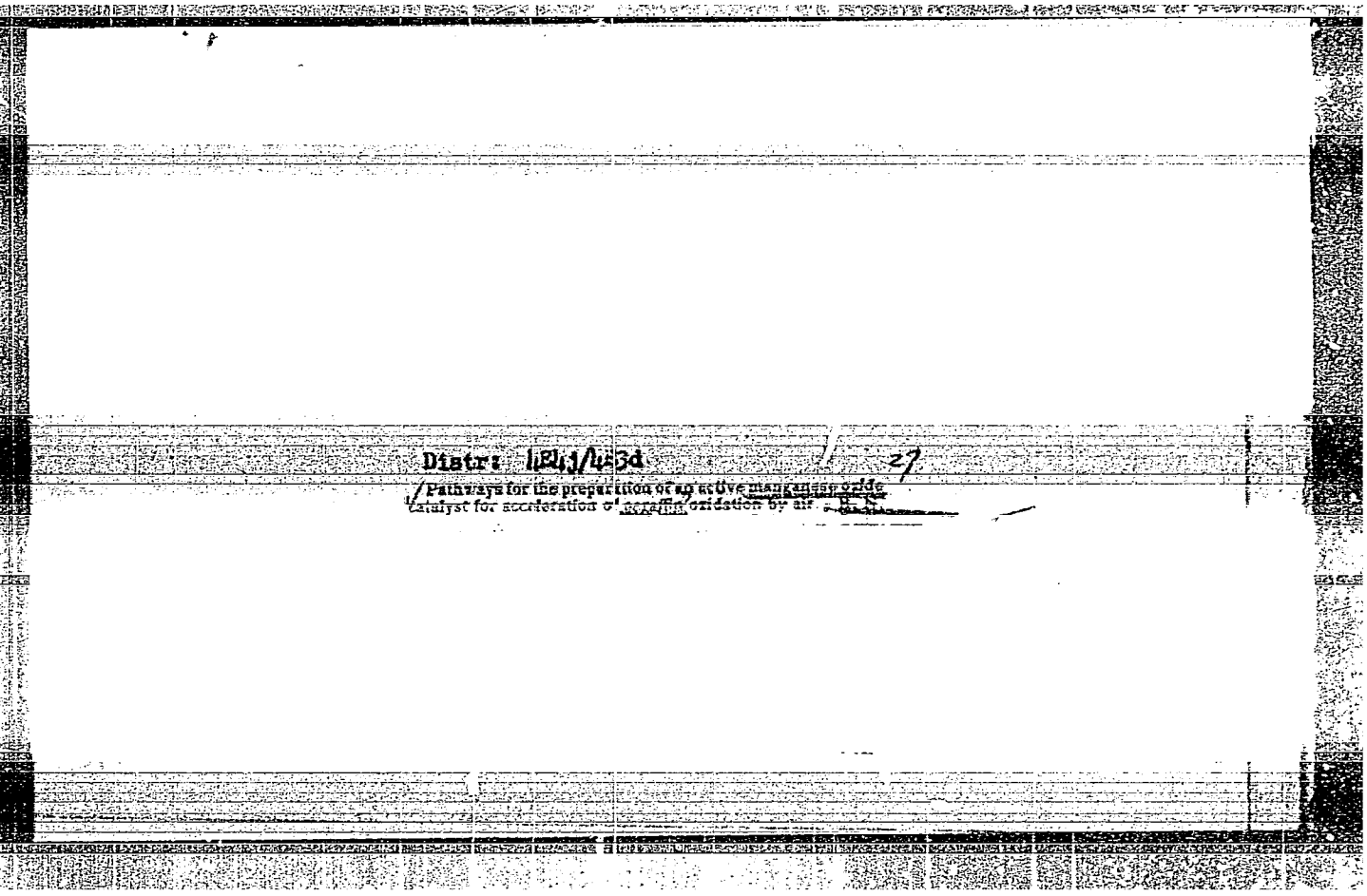


[illegible] iron in the [illegible] nickel catalyst. B. N. Tyutyunnikov

[illegible] increased from 0.4 to 0.7%, and the productivity of catalyst [illegible]



SOV/65-58-12-11/16

AUTHORS: Tyutyunnikov, B. N. and Volkov, Yu. M.

TITLE: The Preparation of Sulphonaphthenic Acids and Their Use in the Manufacture of Detergents (Prigotovleniye sul'fonaftenovykh kislot i ikh primeneniye v proizvodstve moyushchikh sredstv)

PERIODICAL: Khimiya i Tekhnologiya Topliv i Masel, 1958, Nr 12, pp 49 - 52 (USSR)

ABSTRACT: Sodium salts of alkylaryl sulphonic acid, and to a lesser degree, salts of sulphonic acids of the fatty series, are used at present in the manufacture of detergents. Sulphonic acids of the naphthenic series are important because Soviet petroleum often contains a large quantity of naphthenic hydrocarbons of low-molecular weight. The properties of sodium salts of these sulphonaphthenic acids were investigated. These acids can be prepared by sulphochlorination (Refs. 3 and 4). In this connection the sulphochlorination of vaseline and petroleum solar oil (gas oil) from Bakinsk petroleum was investigated. Sodium salts of sulphonic acids can be prepared on a large scale by the following main operations: (1) the refining of the initial crude material; (2) the processing of

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the return oil; (3) the sulphochlorination of the mixtures of the refined crude petroleum and the processed return oil (4) the conversion of the sulphochlorides into sulphonic acids and the preparation of sodium salts of these acids; (5) the purification of the latter from hydrocarbons and (6) the separation of the excess water from the sodium salts of the sulphonic acids. No tar deposit was formed during the sulphochlorination of vaseline oil from which the tars had previously been separated. The same applied to solar oil which had first been treated with 5%, then with 10% concentrated sulphuric acid and finally with 3% bleaching earth. An 85% yield of hydrocarbons was obtained. The layout of the experimental plant, used for the sulphochlorination of vaseline oil, is shown in a figure on page 50. The reaction temperature was 25°C, and the ratio between the S-containing gas and chlorine 1.1:1. The experiment was carried out for three hours. A yield of 27 - 30% weight was obtained. These process conditions

The Preparation of Sulphonaphthenic Acids and Their Use in the Manufacture of Detergents

were most suitable because the end product contained a minimum quantity of disulphochlorides and of chlorination products. Most satisfactory results were obtained when processing the return oil with hydrogen in the presence of an alloy catalyst (Ref.5) at 180°C at a pressure of 10 - 12 atms. A light yellow oil was obtained which only contained a very small quantity of chlorine and had a very low iodine number. A mixture (sulphochlorinated, as defined above) containing three parts of return oil and one part of vaseline oil had the same characteristics as sulphochlorinated compositions containing only vaseline oil. Sulphochlorinated refined solar oil gave approximately equal results. The sulphochlorides were converted into the corresponding sulphonates and the surface-tension, foaming properties and detersive action of these salts determined. A series of other detergents were also prepared and the properties of these & of sulphonates compared. It was found that these compounds were excellent

The Preparation of Sulphonaphthenic Acids and Their Use in the Manufacture of Detergents

detergents. There is 1 Table and there are 7 Soviet References.

ASSOCIATION: Khar'kovskiy politekhnicheskiy institut im. Lenina, (The Khar'kov Polytechnical Institute im. Lenin) and Ukrainskiy nauchno-issledovatel'skiy uglekhimicheskiy institut (Ukrainian Research Institute for Coal Chemistry)

TYUTYUNNIKOV, B.N., doktor tekhn. nauk; NOVITSKAYA, I.I., inzh.

Characteristics of the hydrogenation of fatty acids with hydrazine hydrate. Masl.-zhir. prom. 24 no.2:12-13 '58. (MIRA 11:3)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut zhirov.
(Acids, Fatty) (Hydrazine) (Hydrogenation)

TYUTYUNNIKOV, B.N., doktor tekhn. nauk; MAN'KOVSKAYA, N.K., kand. tekhn. nauk.

New method for producing commercial fractions of synthetic fatty acids. Masl.-zhir. prom. 24 no.3:22-26 '58. (MIRA 11:4)

1. Khar'kovskiy politekhnicheskiy institut (for Tyutyunnikov).
2. Shebekinskiy kombinat sinteticheskikh zhirnykh kislot i zhirnykh spirtov (for Man'kovskaya).

(Acids, Fatty)

TYUTYUNNIKOV, B.N., prof.; POSTOL'NYY, A.N.

Separation of an industrial alcohol fraction from unsaponifiable matter (II). Masl.-zhir. prom. 24 no.4:27-30 '58. (MIRA 11:5)

1.Khar'kovskiy politekhnicheskiy institut.
(Unsaponifiable matter) (Alcohols)

TYUTYUNNIKOV, B.N., doktor tekhn.nauk; GRECHISHNIKOVA, L.P.

Composition of volatile matter determining the odor of hydrogenated sunflower oil. Masl.-zhir.prom. 24 no.5:22-27 '58. (MIRA 12:1)

1. Khar'kovskiy politekhnicheskiy institut.
(Sunflower seed oil) (Essences and essential oils)

TYUTYUNNIKOV, B.N., doktor tekhn. nauk; GRECHISHNIKOVA, L.P., inzh.

Composition of volatile substances causing the odor in hydrogenated fats. Masl.-zhir. prom. 24 no. 6:8-12 '58. (MIRA 11:7)

1. Khar'kovskiy politekhnicheskiy institut.
(Oils and fats, Edible)

Tyutyunnikov, 15(1)

PHASE I BOOK EXPLOITATION SOV/3663

Akademiya nauk SSSR. Institut khimicheskoy fiziki

Okisleniye uglevodorodov v zhidkoy faze; sbornik statey (Oxidation of Hydrocarbons in the Liquid Phase; Collection of Articles) Moscow, Izd-vo AN SSSR, 1959. 334 p. Errata slip inserted. 2,200 copies printed.

Ed.: N. M. Emanuel', Corresponding Member, Academy of Sciences USSR; Ed. of Publishing House: K. M. Dyumayev; Tech. Ed.: I. F. Kuz'min.

PURPOSE: This collection of articles is intended for chemists interested in hydrocarbon oxidation reactions, particularly for those specializing in petroleum fuels.

COVERAGE: This collection of 35 articles represents the results of investigations over a period of several years on problems of hydrocarbon oxidation. The authors present their own theoretical and experimental data and also draw from current literature. No personalities are mentioned. References accompany most of the articles.

Mal'kovskaya, N.K., G.I. Moshvina, and V.P. Kutryashova [Vsesoyuznyy nauchno-issledovatel'skiy institut zhirov i Kombinat sinteticheskikh zhirnykh kislot i zhirnykh spirtov (All-Union Research Institute of Fats; Combine of Synthetic Fatty Acids and Fatty Alcohols)]. Oxidation of High-Molecular Hydrocarbons to Fatty Acids 268

The authors have synthesized fatty acids and several neutral oxygen derivatives by oxidizing paraffinic hydrocarbons with atmospheric oxygen. Catalysis with 0.2% potassium permanganate increased oxygen absorption fourfold and yielded 45% fatty acids after 20 hours.

Tyutyunnikov, B.N. and A.A. Perchenko. [Khar'kov Polytechnical Institute imeni V.I. Lenin]. Role of a Mixture of Manganese Oxides as an Accelerator of Paraffin Oxidation by Atmospheric Oxygen 275

Manganese oxide waste-products of the vitamin industry and manganese oxide residue from treating paraffin with a potassium permanganate solution increased the rate of air oxidation of paraffin. The authors cite a method for the preparation of active catalysts for this reaction from pyrolusite.

Varlamov, V.S., and A.I. Il'ina [Vsesoyuznyy nauchno-issledovatel'skiy institut zhirov- (All-Union Scientific Research Institute of Fats)]. Effect of Temperature and a Catalyst on Liquid-Phase Oxidation of Paraffin to Monatomic Fatty Acids 282

Petrov, G.S. (Deceased), and A.P. Grigor'yev. Preparation of Various Types of Acids From Solar Distillate 295

The authors give data on the extraction of sulfo acids from the sulfonated solar oil fraction of petroleums, and on the oxidation of vaseline oil to obtain carboxylic and hydroxy carboxylic acids.

Chertkov, Ya.B., and V.N. Zrelov [Nauchno-issledovatel'skiy institut goryucho-smazochnykh materialov- (Scientific Research Institute of Combustibles and Lubricating Materials)]. The Oxidation of Hydrocarbon Fuels in Storage 299

The authors state that the oxidation of fuels stored at moderate temperatures may be minimized by removing low-stability cyclic hydrocarbons having unsaturated side chains, or by introducing additives which will prevent their oxidation or the thickening of their oxidation products into resinous substances. It is also stated that low temperatures and nearly hermetic conditions also inhibit oxidation.

TYUTYUNNIKOV, B.N., doktor tekhn.nauk; KOSHEL', I.Z., inzh.

Activity of binary hydrogenation catalysts. Masl.-zhir.prom. 25 no.2:14-15 '59. (MIRA 12:2)

1. Khar'kovskiy politekhnicheskiy institut.
(Oils and fats) (Hydrogenation) (Catalysts)

TYUTYUNNIKOV, B.N., doktor tekhn.nauk; NOVITSKAYA, I.I., inzh.

Use of ultrasonics in the preparation of catalysts for the hydrogenation of fats. Masl.-zhir.prom. 25 no.11: 13-15 '59. (MIRA 13:3)

1. Khar'kovskiy politekhnicheskiy institut imeni V.I. Lenina.
(Ultrasonic waves--Industrial applications)
(Catalysis) (Oils and fats)

TYUTYUNNIKOV, Boris Nikanorovich, prof.; ISLAMKINA, T.F., red.; ATROSHCHENKO, L.Ye., tekhn.red.

[Natural and synthetic fats] Natural'nye i sinteticheskie zhiry. Moskva, Izd-vo "Znanie," 1960. 23 p. (Vsesoiuznoe obshchestvo po rasprostraneniiu politicheskikh i nauchnykh znanii. Ser.4, Nauka i tekhnika, no.30). (MIRA 13:11)

(Oils and fats)

TYUTYUNNIKOV, B.N., prof., doktor tekhn.nauk; NOSKOV, B.A., dotsent, kand. tekhn.nauk; RYZHKOV, I.V., kand.tekhn.nauk; PEPENKO, V.D., assistent; BOGDAN, I.V., inzh.

Liquid water glass mixtures. Izv.vys.ucheb.zav.; mashinostr. no.4: 60-63 '60. (MIRA 14:4)

1. Khar'kovskiy politekhnicheskiy institut.
(Soluble glass)

S/065/60/000/004/004/017
E071/E435

AUTHORS: Tyutyunnikov, B.N. and Perchenko, A.A.

TITLE: Manganese Pyrolusite as a Catalyst for the Oxidation of Paraffin

PERIODICAL: Khimiya i tekhnologiya topliv i masel, 1960, No.4, pp.14-19

TEXT: For the oxidation of paraffin in the production of synthetic fatty acids potassium permanganate is used as an oxidizing catalyst. As this catalyst is expensive, an investigation of its action was carried out in order to find a cheaper but not less active catalyst. The experimental procedure is described in some detail. It was found that when potassium permanganate is used for speeding up the reaction of oxidation of paraffin by air, initially a heterogeneous catalysis of the process by a mixture of higher oxides of manganese and potassium oxide takes place. Whereupon, the induction period in respect of acids decreases due to the action of products of oxidation (peroxides) formed during the heating of paraffin with the catalyst in the presence of air. On dissolution of manganese oxides with the formation of potassium-manganese soaps

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S/065/60/000/004/004/017
E071/E435

Manganese Pyrolusite as a Catalyst for the Oxidation of Paraffin

which are soluble in the reaction mixture, a homogeneous catalysis takes place, the main role in which belongs to manganese-potassium complex compounds. For the above purpose, potassium permanganate can be replaced by oxides of manganese and potassium - waste product of the vitamin industry. Permanganate and oxides of manganese and potassium can be in turn replaced by pyrolusite activated by heating with alkali. For the above purpose, instead of a heterogeneous catalyst, a homogeneous catalyst can be utilized in the form of a complex compound containing manganese and potassium. Its solubility in paraffin can be secured without using an excess of fatty acids by preliminary dissolving medium potassium and manganese soaps (the latter unsaponifiable). There are 3 tables and 8 references: 7 Soviet and 1 Non-Soviet.

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S/081/61/000/019/056/085
B117/B110

AUTHORS: Tyutyunnikov, B. N., Perchenko, A. A.

TITLE: The problem of acceleration of paraffin oxidation in the presence of industrial manganese accelerators

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 19, 1961, 321, abstract 19L6 (Sb. nauchn. rabot. In-t Fiz.-organ. khimii AN BSSR, no. 8, 1960, 148 - 154)

TEXT: Mn-K compounds formed during paraffin oxidation with atmospheric O_2 in the presence of active MnO_2 and K_2CO_3 were found to have an inhibitory and catalytic effect on the oxidation process. During paraffin oxidation in the presence of MnO_2 - K_2CO_3 and MnO_2 - K-stearate mixtures (ratio of Mn to K = 1:1), i.e., during the first 2 - 2.5 hr after induction the Mn oxides are entirely converted into Mn compounds soluble in the oxidation product. The dissolution of Mn oxides is accelerated by potash soaps. During the induction period MnO_2 initiates the formation of hydrocarbon radicals by shortening the period. During the period

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S/081/61/000/019/056/085
B117/B110

The problem of acceleration of...

after induction Mn-K complexes obviously play the main role in the acceleration of the oxidation process. The K ion functions as a stabilizer in such a complex. [Abstracter's note: Complete translation.]

Card 2/2

TYUTYUNNIKOV, B.N.; NOVITSKAYA, I.I.

Action of a methanol solution of iodine upon fatty acid radicals. Ukr. khim. zhur. 26 no.2:218-221 '60. (MIRA 13:9)

1. Khar'kovskiy politekhnicheskiy institut.
(Adids, Fatty) (Radicals (Chemistry)) (Iodine)

TYUTYUNNIKOV, B.N., doktor tekhn.nauk; PERCHENKO, A.A., inzh.

Effect of alkali as a constituent of the catalyst on the rate of oxidation of paraffins. Masl.-zhir.prom. 26 no.3:23-26 Mr '60. (MIRA 13:6)

1. Khar'kovskiy politekhnicheskiy institut imeni V.I.Lenina (for Tyutyunnikov). 2. NIISZHiMS (for Perchenko).
(Paraffins) (Oxidation)

TYUTYUNNIKOV, B.N., doktor tekhn.nauk; VYSOTSKIY, S.

Problem in the quantitative determination of radical selectivity in the hydrogenation of fats. Masl.-zhir. prom. 26 no.4:25-29 Ap '60. (MIRA 13:6)

1. Khar'kovskiy politekhnicheskiy institut imeni V.I. Lenina.
(Oils and fats) (Hydrogenation)

TYUTYUNNIKOV, B.N., doktor tekhn.nauk; VYSOTSKIY, S.

Effect of certain factors on selectivity in the hydrogenation of fats. Masl.-zhir.prom. 26 no.5:12-14 My '60. (MIRA 13:12)

1. Khar'kovskiy politekhnicheskiy institut imeni V.I.Lenina.
(Oils and fats) (Hydrogenation)

TYUTYUNNIKOV, B.N., doktor tekhn.nauk; NOVITSKAYA, I.I., inzh.

New methods of preparing industrial catalysts for the hydrogenation of fats. Masl.-zhir.prom. 26 no.6:18-21 Je '60. (MIRA 13:6)

1. Khar'kovskiy politekhnicheskiy institut imeni V.I.Lenina.
(Oils and fats) (Hydrogenation) (Catalysts)

TYUTYUNNIKOV, B.N., doktor tekhn.nauk; BOGDAN, I.V., inzh.

Changes of fatty acid radicals taking place during the heating of esters with aluminosilicates of acidic nature. Masl.-zhir. prom. 26 no.9:20-22 S '60. (MIRA 13:8)

1. Khar'kovskiy politekhnicheskiy institut imeni V.I.Lenina.
(Acids, Fatty), (Esters) (Aluminosilicates)

18.8310

S/081/61/000/001/006/017
A005/A105

Translation from: Referativnyy zhurnal, Khimiya, 1961, No. 1, p. 295, # 1I172

AUTHORS: Tyutyunnikov, B.N., Bukhshtab, Z.I.

TITLE: On the Problem of the Causes of "Emersion" of Aluminum Bronze

PERIODICAL: "Tr. Khar'kovsk. politekhn. in-ta", 1959, Vol. 26, pp. 155 - 159

TEXT: To enlarge the durability of anticorrosion coatings consisting of organic substances, a special polished powder (Al-bronze) is being applied, which prevents from the permeation of light into the depth of the layer protecting from premature aging of the film-building substance. The decrease in the wettability of the Al-bronze-lamellae by drying oil, varnishes, and other oils in consequence of that a mixture of stearic acid and Al-stearate occurs in them, is caused not by this mixture proper but by a layer of O_2, occurring on it. The growth of the Al-bronze may be excluded, if polish it in the presence of a mixture of stearic acid and Al-stearate. It is established that the formation of the lustrous coating

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S/081/61/000/001/006/017
A005/A105

On the Problem of the Causes of "Emersion" of Aluminum Bronze

film on the surface of a suspension of Al-bronze in varnishes - drying oil is caused by froth flotation of its lamellae owing to the air contained in the bronze (among the particles).

N. Popova

Translator's note: This is the full translation of the original Russian abstract.

Card 2/2

TYUTYUNNIKOV, B.N.; BUKHSHTAB, Z.I.; GASYUK, L.V.

Obtaining naphthenic alcohols by the oxidation of higher naphthenes. Khim. i tekh. topl. i masel 9 no.12:20-24 D '64. (MIRA 18:2)

1. Khar'kovskiy politekhnicheskiy institut.

NEVOLIN, Fedor Vasil'yevich; TYUTYUNNIKOV, B.N., doktor tekhn. nauk, prof., retsenzent; BASHKIROV, A.N., spets. red.; MOROZOVA, I.I., red.

[Chemistry and technology of synthetic detergents] Khimiia i tekhnologiia sinteticheskikh moiushchikh sredstv. Moskva, Izd-vo "Pishchevaia promyshlennost'," 1964. 362 p. (MIRA 17:7)

1. Chlen-korrespondent AN SSSR (for Bashkirov).

TYUTYUNNIKOV, B.N., prof. (Khar'kov); GRECHISHNIKOVA, L.P., kand.tekhn.nauk (Khar'kov); DUBINSKIY, P.B., inzh. (Khar'kov)

Washing of passenger car bodies. Zhel.-dor.transp. 45 no.12:82-83 D '63. (MIRA 17:2)

TYUTYUNNIKOV, B.N.; BUKHSHTAB, Z.I.

Oxidation of paraffin hydrocarbons in the presence of acid catalysts. Izv.vys.ucheb.zav.; pishch.tekh. no.5:59-63 '63. (MIRA 16:12)

1. Khar'kovskiy politekhnicheskiy institut imeni V.I.Lenina, kafedra tekhnologii zhirov.

TYUTYUNNIKOV, B.N., doktor tekhn. nauk; GRECHISHNIKOVA, L.P., kand. tekhn. nauk

Causes of the slow hydrogenation of rape oil. Masl.-zhir. prom. 29 no.6:14-16 Je '63. (MIRA 16:7)

1. Khar'kovskiy politekhnicheskiy institut imeni V.I. Lenina.
(Rape oil) (Hydrogenation)

TYUTYUNNIKOV, B.N., doktor tekhn.nauk; BOGDAN, I.V., inzh.

Mechanism of the formation of transisomers of oleic acid during the hydrogenation of oleic acid radicals. Masl.-zhir.prom. 29 no.2:13-18 F '63. (MIRA 16:4)

1. Khar'kovskiy politekhnicheskiy institut imeni V.I.Lenina.
(Oleic acid) (Isomerization)

TYUTYUNNIKOV, B.N., doktor tekhn.nauk; NOVITSKAYA, I.I., inzh.

Effect of the nonsaturation degree of oils on the efficiency of the nickel-formate catalyst. Masl.-zhir.prom. 28 no.9: 18-20 S '62. (MIRA 15:9)

1. Khar'kovskiy politekhnicheskiy institut imeni V.I.Lenina.
(Catalysts, Nickel)

TYUTYUNNIKOV, B.N.; VYSOTSKIY, S.

Hydrogenation of sunflower seed oil with simultaneous supersonic imposition. Izv. vys. ucheb. zav.; pishch. tekh. no.5:44-48 '61. (MIRA 15:1)

1. Khar'kovskiy politekhnicheskiy institut imeni V.I.Lenina. Kafedra tekhnologii zhirov.
(Sunflower seed oil) (Hydrogenation)
(Ultrasonic waves--Industrial applications)

TYUTYUNNIKOV, B.N.; BAZALEY, N.V.

Effect of the temperature of paraffin oxidation on the primary and secondary alcohol content of unsaponifiables. Izv.vys.ucheb.-zav.; pishch.tekh. 2:41-45 '62. (MIRA 15:5)

1. Khar'kovskiy politekhnicheskiy institut imeni Lenina, kafedra tekhnologii zhirov.

(Paraffins)

TYUTYUNNIKOV, B.N., doktor tekhn.nauk; BOGDAN, I.V., inzh.

Role of certain factors in the formation of isooleic acids in hydrogenated oils. Masl.-zhir.prom. 28 no.3:20-25 Mr '62. (MIRA 15:4)

1. Khar'kovskiy politekhnicheskiy institut imeni V.I.Lenina.
(Oleic acids)

TYUTYUNNIKOV, B.N., doktor tekhn.nauk; NOVITSKAYA, I.I., inzh.

Mechanism of building hydrogenation catalyst from nickel formate.
Masl. - zhir. prom. 27 no.12:17-21 D '61. (MIRA 14:12)

1. Khar'kovskiy politekhnicheskiy institut imeni V.I.Lenina.
(Hydrogenation)
(Catalysts, Nickel)

TYUTYUNNIKOV, Boris Vasil'yevich, doktor tekhn. nauk, prof.; NAUMENKO, Petr Vasil'yevich; TOVBIN, Isaak Moiseyevich; FANIYEV, Garegin Georgiyevich; KALMENS, R.I., red.; KISINA, Ye.I., tekhn. red.

[Technology of the processing of oils and fats] Tekhnologiia pererabotki zhirov. [By] B.N.Tiutiunnikov i dr. 3., perer. i dop. izd. Moskva, Pishchepromizdat, 1963. 594 p. (MIRA 17:2)

TYUTYUNNIKOV, F.

In study and work. Politekh.obuch. no.3:86-87 Mr '59.
(MIRA 12:4)

1. Oblastnoy otdel narodnogo obrazovaniya, Rostov-na-Donu.
(Samarskoye--Agriculture--Study and teaching)

TYUTYUNNIKOV, F.K.

Student brigade. Biol.v shkole no.3:43-46 My-Je '59.
(MIRA 12:9)

1. Inspektor shkol Rostovskogo oblastnogo otdela narodnogo obrazovaniya. Iz opyta Samarskoy sredney shkoly No.1 Rostovskoy oblasti.
(Samarskoye District--Agriculture--Study and teaching)

TYUTYUNNIKOV, F.N.; REVYAKIN, A.A.; TAYCHER, M.M.

Chemical branch of the by-product coking industry. Koks i khim. no.11:40-47 '57. (MIRA 10:12)

1. Gosplan RSFSR (for Tyutyunnikov). 2. Metallurgizdat (for Revyakin).
(Coke industry)

SOV/68-59-3-8/23

AUTHOR: Tyutyunnikov, G.N

TITLE: Internal Reserves of Productive Capacity on Coking Works Should be Utilised (Ispol'zovat' vnutrenniye rezervy koksokhimicheskikh zavodov)

PERIODICAL: Koks i Khimiya, 1959, Nr 3, pp 38-42 (USSR)

ABSTRACT: Various measures necessary to improve the absorption and subsequent yield of coking by products are discussed.

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TYUTYUNNIKOV, G.N.

Utilize untapped resources of by-product coking plants. Koks i khim. no.3:38-42 '59. (MIRA 12:3)
(Coke industry--By-products)

68-11-8/11

AUTHORS: Tyutyunnikov, G.N., Revyakin, A.A., and Taycher, M.M.

TITLE: Chemical Side of the Coking Industry (Khimicheskoye krylo koksokhimicheskoy promyshlennosti)

PERIODICAL: Koks i Khimiya, 1957, No. 11, pp. 40 - 47 + 4 plates(USSR)

ABSTRACT: A historical survey of the development of the by-product side of the coking industry in Russia is outlined. The yield of main by-products (tar, ammonia, raw benzole) per ton of dry coal charge during 1913-1956 is shown in Table 1, and increase in the processing of tar during 1924-1956 in Table 2. There are 2 tables and 7 figures.

ASSOCIATIONS: Gosplan RSFSR and Metallurgizdat.

AVAILABLE: Library of Congress

Card 1/1

Tyutyunnikov, I. A.

TYUTYUNNIKOV, I.A.

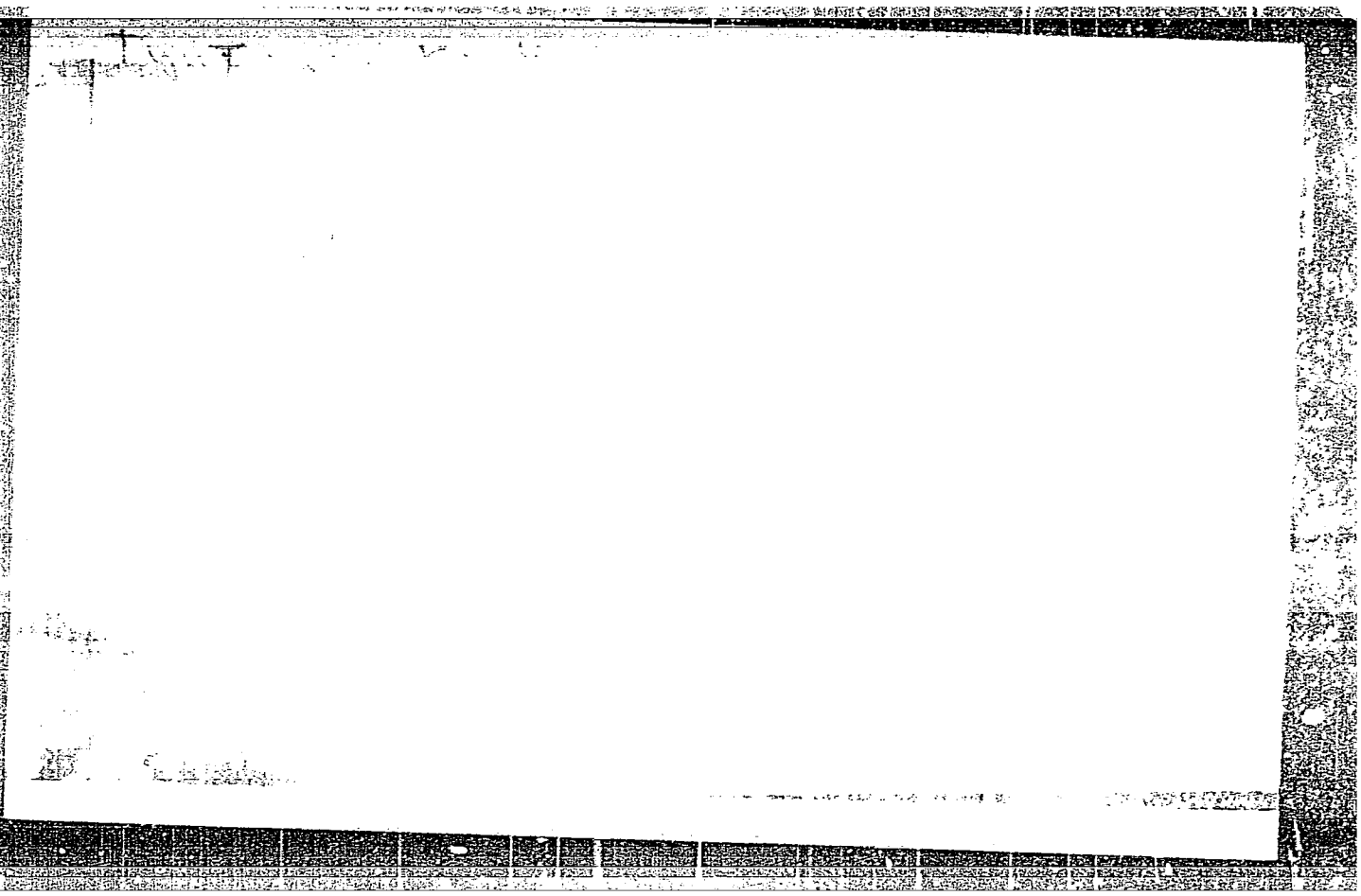
Some problems concerning efficient utilization of the natural and labor resources of Kzyl-Orda Province. Vest. AN Kazakh. SSR 13 no.12:49-55 D '57. (MIRA 11:1)
(Kzyl-Orda Province--Economic conditions)

YEFIMOVICH, Ye.K.; NESTEROV, V.V.; TYUTYUNNIKOV, N.F.; SHINKARSKIY, D.G.; ZABRODA, Yu.F.; KONDRAT'YEV, U.K.; GORODNICHENKO, A.I.

Automatic level control of flotation concentrate in vacuum filter baths. Avtom.i prib. no.3:21-23 Jl-S '62. (MIRA 16:2)

1. Institut avtomatiki Gosplana UkrSSR (for Yefimovich, Nesterov, Tyutyunnikov, Shinkarskiy, Zabroda, Kondrat'yev).
2. Dneprodzerzhinskiy koksokhimicheskiy zavod imeni Ordzhonikidze (for Gorodnichenko).

(Flotation)
(Liquid level indicators)



APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R001857810009-2"

TYUTYUNNIKOV, YU. B.

USSR /Chemical Technology. Chemical Products and Their Application I-15

Treatment of solid mineral fuels

Abs Jour: Referat Zhur - Khimiya, No 9, 1957, 31804

Author : Tyutyunnikov Yu. B.

Title : Change in Electric Resistance of Coal During Thermal and Dielectric Heating.

Orig Pub: Khimiya i tekhnol. topliva, 1956, No 6, 20-25

Abstract: A study was made of changes in electric resistance of Donets coal of grades D. G. K and PS, during thermal and dielectric heating (current frequencies up to 120 megahertz were used). It was found that the extent of carbonization of the coal, at the same temperature, is considerably higher in the case of dielectric heating,

Card 1/2

USSR /Chemical Technology. Chemical Products and Their Application I-15

Treatment of solid mineral fuels

Abs Jour: Referat Zhur - Khimiya, No 9, 1957, 31804

than on thermal heating: indices of electric resistance of coal, obtained on thermal heating up to 700°, are reached already at 450-500° as a result of dielectric heating. Degree of carbonization increases with increasing frequency of the heating current, and this correlation is most clearly manifested in the case of the low-metamorphosis coal of grades D and G.

Card 2/2

ТЮТЮННИКОВ, Ю.Б.

68-12-8/25

AUTHOR: Tyutyunnikov, Yu.B., Candidate of Technical Sciences.

TITLE: Application of High-frequency Currents for Heating Coal Briquettes During Their Caking Stage (Primeneniye tokov vysokoy chastoty dlya nagreva ugol'nykh formovok v stadii spekaniya)

PERIODICAL: Koks i Khimiya, 1957, No.12, pp. 22 - 26 (USSR)

ABSTRACT: The possibility of high-frequency heating of coal briquettes during their caking stage (plastic state) was investigated. Coal briquettes were heated with 21.4 Mc/s currents at heating rates 66, 50 and 33 °C/min. For comparison, similar briquettes were heated in the normal way at a rate of 1.5 °C/min. The strength of caked briquettes was determined by the Roga drum and the VUKhIN method (Ref.6). High-frequency heating was also tested on moving briquettes on a continuous experimental plant in the Kharkov Coke Oven Works (Khar'kovskiy koksokhimicheskiy zavod). Experimental results are given in Tables 1-5 and Graphs 1-5. It is concluded that the use of high-frequency currents for the above purpose is advantageous. It was established that dielectric heating of coal briquettes from 380 to 480 °C is uniform through the whole cross-section of the briquettes (no temperature gradient across briquettes' diameter is formed). The optimum briquetting pressure for rapid

Card1/2

Application of High-frequency Currents for Heating Coal Briquettes During Their Caking Stage.

heating of briquettes was found to be 2 - 3 kg/cm^2. The maximum heating rate of briquettes during the caking stage should not exceed 33 - 40 °C/min as with higher velocities briquettes of lower strength are produced. Briquettes heated by high-frequency currents at a rate not exceeding 33-40 °C/min possess high mechanical strength, superior to that of briquettes heated normally at a rate of 1.5 °C/min (under normal heating conditions higher heating rates could not be used due to a high temperature gradient across the briquette). Dielectric heating of continuously moving briquettes at a rate of 32 °C/min gave results similar to those obtained under laboratory conditions. The following participated in the work: Kontar', Mikhalko and Starkov. There are 5 figures, 5 tables and 6 Slavic references.

ASSOCIATION: UKhIN

AVAILABLE: Library of Congress

Card 2/2

Addition of hydrogen to acetylene compounds. XIII. Catalytic hydrogenation of symmetric dimethyldihexylbutynediol. Yu. S. Zal'kind and E. V. Fomina-Smirnova (A. I. Gertsen State Pedagog. Inst., Moscow). *Sborník Statei Obshchei Khim.* 2, 1303–7 (1953); cf. *C.A.* 48, 7053g.—Hydrogenation of $[MeC(n\text{-}C_4H_9)(OH)C\equiv]_2$ (I) over Pd and Pt black was studied. I exists in isomeric forms which were sepd. by crystn. from various solvents; the high-melting *stereoisomer*, m. 89–91°, is somewhat less sol. than the low-melting *isomer*, m. 68–70.5°. Although both isomers hydrogenate more slowly than does $[Me_2C(OH)C\equiv]_2$ over Pd, they hydrogenate more rapidly than the tetra-Et analog or the tetra-Ph analog. The high-melting isomer is hydrogenated somewhat more rapidly than the low-melting isomer. The *ethene analog* of I, obtained by hydrogenation, m. 29–31°; the *satd. analog*, m. 34–6°. The ethene analog oxidized with $KMnO_4$ to $MeCOC_5H_9$ and 2-methyl-2-hydroxyoctanecarboxylic acid, m. 34–6°. Treatment of the ethene analog with Br in cold $CHCl_3$ gave a product which evolved HBr, and which after steam distn. gave a crude product, probably consty a mixt. of oxides of brominated and unbrominated glycols. Heating I with MeOM in the presence of H_2SO_4 gave the *di-Me ether*, b. 176–81.5°, d_4^{25} 0.8927, n_D^{25} 1.4571, which on treatment with H over Pd or Pt black took up H much more slowly than did the original I.

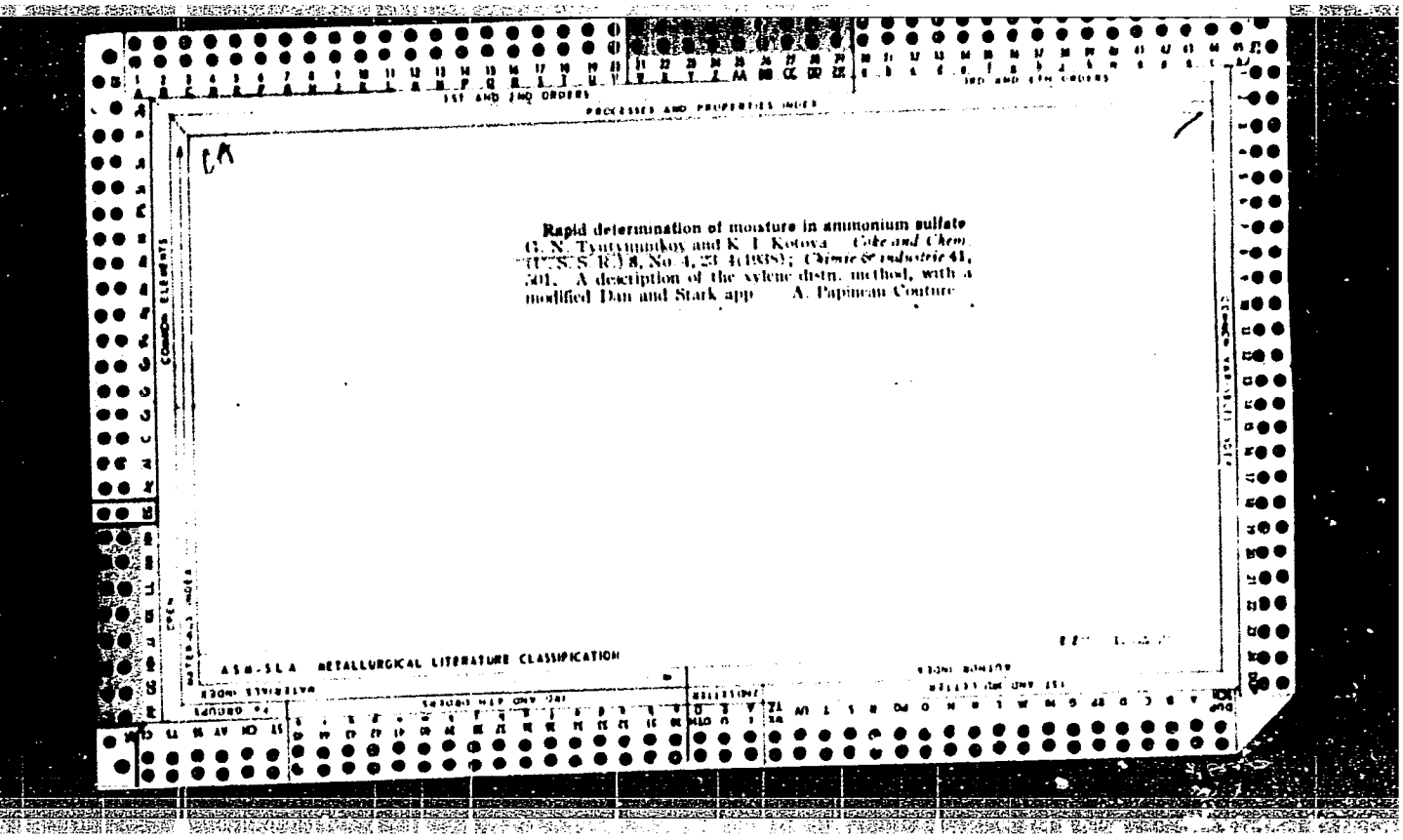
G. M. Kosolapoff

DIDENKO, V.Ye.; TSAREV, M.N.; DMITRIYEV, M.M.; LEYTES, V.A.; OBUKHOVSKIY, Ya.M.; IVANOV, Ye.B.; CHERTOK, V.T.; URSALENKO, R.N.; KRIGER, I.Ya.; PINCHUK, A.K.; ANTONENKO, N.Z.; SMUL'SON, A.S.; VASIL'CHENKO, S.I.; DRASHKO, A.M.; RAYEVSKIY, B.N.; KUCHIRYAVENKO, D.N.; SAVCHUK, A.I.; ZHURAVLEVA, L.I.; BAUTIN, I.G.; KHRIYENKO, V.Ya.; MOSENKO, N.K.; CHEBONENKO, G.P.; LISSOV, L.K.; MAMONTOV, V.V.; BELUKHA, A.A.; POYDUN, V.F.; VOLODARSKIY, M.B.; KAL'CHENKO, G.D.; LEVCHENKO, V.M.; BASHKIROV, A.A.; VOROB'YEV, M.F.; IL'CHENKO, L.I.; PODSHIVALOV, F.S.; MOGIL'NYY, P.P.; LEVI, A.R.; VASLYAYEV, G.P.; DURNOV, V.V.; OSYPA, S.S.; SAMOYLOV, G.N.; FOMIN, A.F.; LESHCHINA, A.I.; FANKEL'BERG, G.Ye.; KHODANKOV, A.T.; MAKARENKO, I.S.; KARPOVA, K.K.; VASILENKO, I.M.; VOLOSHCHUK, A.S.; SHELKOV, A.K.; FILIPPOV, B.S.; TYUTYUNNIKOV, G.N.; DOLINSKIY, M.Yu.; NIKITINA, P.P.; MEDVEDEV, S.M.; TSOGLIN, M.E.; LERNER, R.Z.; BOGACHEV, V.I.

Mihail IAkovlevich Moroz; obituary. Koks i khim.no.3:64 '56.(MLRA 9:8)
(Moroz, Mikhail IAkovlevich, 1902?-1956)

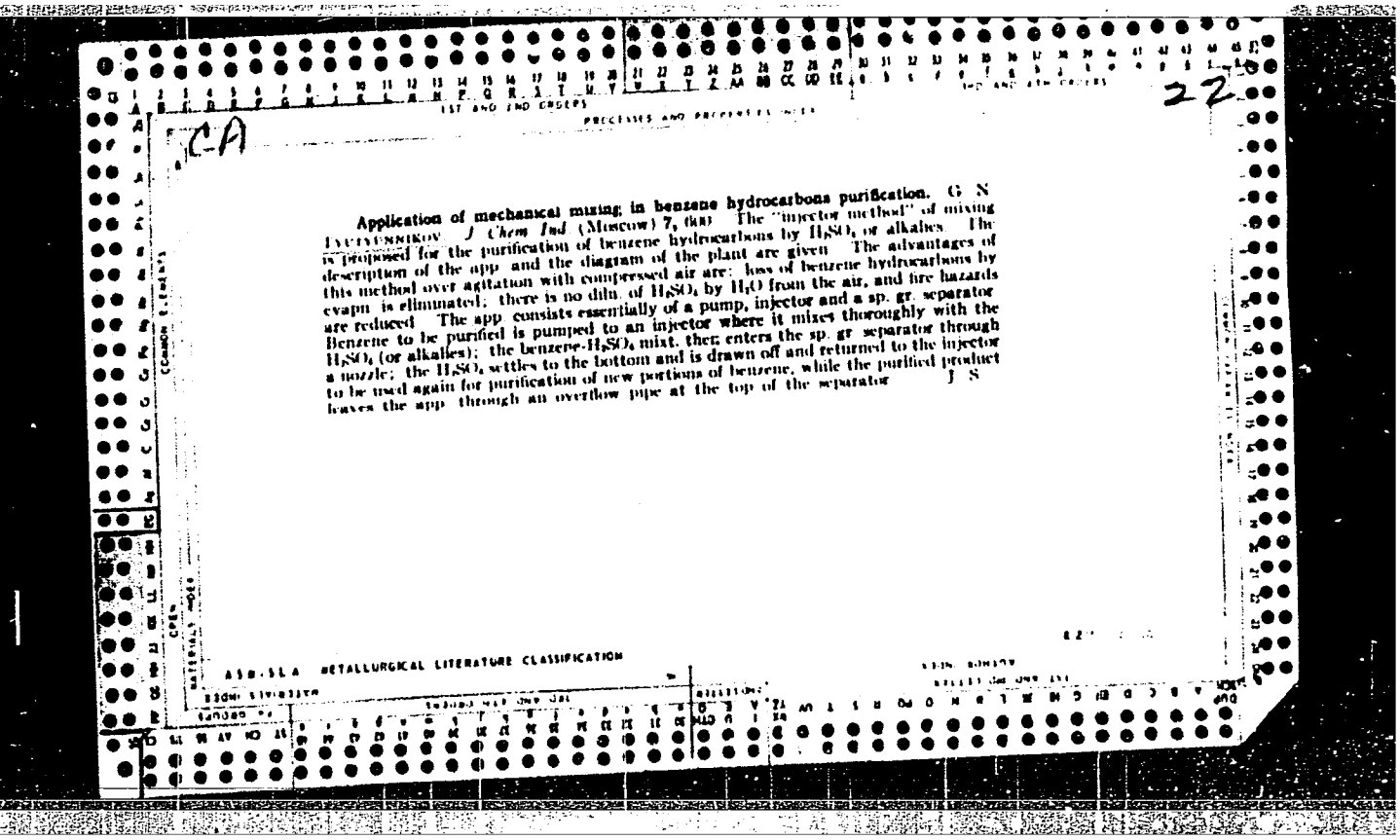
VODNEV, G.G.; SHELKOV, A.K.; DIDENKO, V.Ye.; FILIPPOV, B.S.; TSAREV, M.N.; ZASHVARA, V.G.; LITVINENKO, M.S.; MEDVEDEV, K.P.; MOLODTSOV, I.G.; LGALOV, K.I.; RUBIN, P.G.; SAPOZHNIKOV, L.M.; TYUTYUNNIKOV, G.N.; DMITRIYEV, M.M.; LEYTES, V.A.; LERNER, B.Z.; MEDVEDEV, S.M.; REVYAKIN, A.A.; TAYCHER, M.M.; TSOGLIN, M.E.; DVORIN, S.S.; RAK, A.I.; OBUKHOVSKIY, Ya.M.; KOTKIN, A.M.; ARONOV, S.G.; VOLOSHIN, A.I.; VIROZUB, Ye.V.; SHVARTS, S.A.; GINSBURG, Ya.Ye.; KOLYANDR, L.Ya.; BELETSKAYA, A.F.; KUSHNEREVICH, N.R.; BRODOVICH, A.I.; NOSALEVICH, I.M.; SHTROMBERG, B.I.; MIROSHNICHENKO, A.M.; KOPELIOVICH, V.M.; TOPORKOV, V.Ya.; AFONIN, K.B.; GOFTMAN, M.V.; SEMENENKO, D.P.; IVANOV, Ye.B.; PEYSAKHZON, I.B.; KULAKOV, N.K.; IZRAELIT, E.M.; KVASHA, A.S.; KAFTAN, S.I.; CHERMNYKH, M.S.; SHAPIRO, A.I.; KHALABUZAR', G.S.; SEKT, P.Ye.; GABAY, L.I.; SMUL'SON, A.S.

Boris Iosifovich Kustov; obituary. Koks i khim. no.2:64 '55.(MLRA 9:3)
(Kustov, Boris Iosifovich, 1910-1955)



Rapid determination of moisture in ammonium sulfate
G. N. Tyutyunnikov and K. I. Kotova *Koks and Chem.* (U.S.S.R.) 8, No. 4, 23-4 (1938); *Chimie & industrie* 41, 501. A description of the xylene distn. method, with a modified Dan and Stark app. — A. Papineau-Couture

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

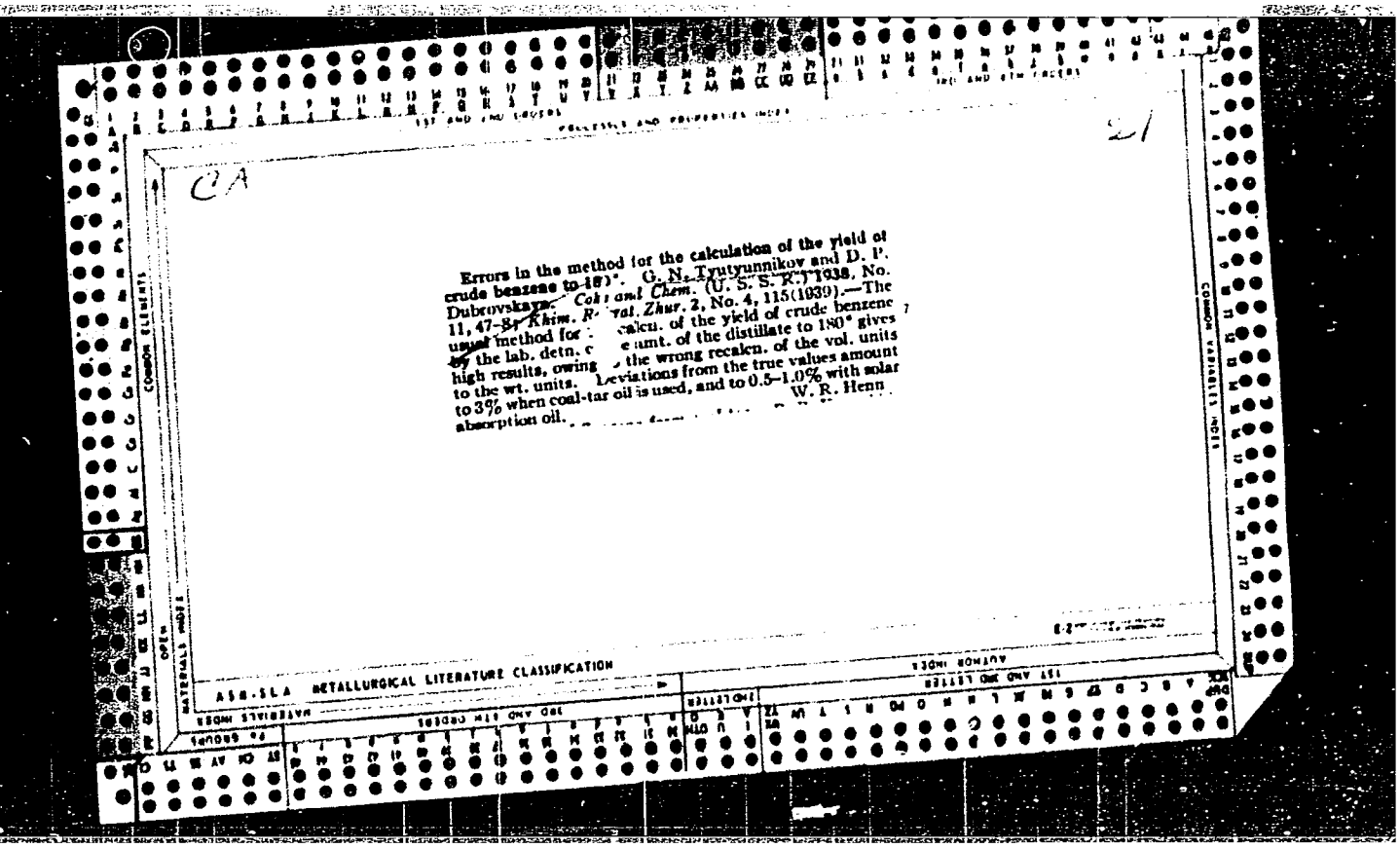


C-A

22

Application of mechanical mixing in benzene hydrocarbons purification. G N LYUTSENNIKOV *J Chem Ind* (Moscow) 7, (1930) The "injector method" of mixing is proposed for the purification of benzene hydrocarbons by H_2SO_4 or alkalies. The description of the app and the diagram of the plant are given. The advantages of this method over agitation with compressed air are: loss of benzene hydrocarbons by evapn is eliminated; there is no dilu. of H_2SO_4 by H_2O from the air, and fire hazards are reduced. The app consists essentially of a pump, injector and a sp. gr. separator. Benzene to be purified is pumped to an injector where it mixes thoroughly with the H_2SO_4 (or alkalies); the benzene-H_2SO_4 mixt. then enters the sp. gr. separator through a nozzle; the H_2SO_4 settles to the bottom and is drawn off and returned to the injector to be used again for purification of new portions of benzene, while the purified product leaves the app. through an overflow pipe at the top of the separator. J S

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

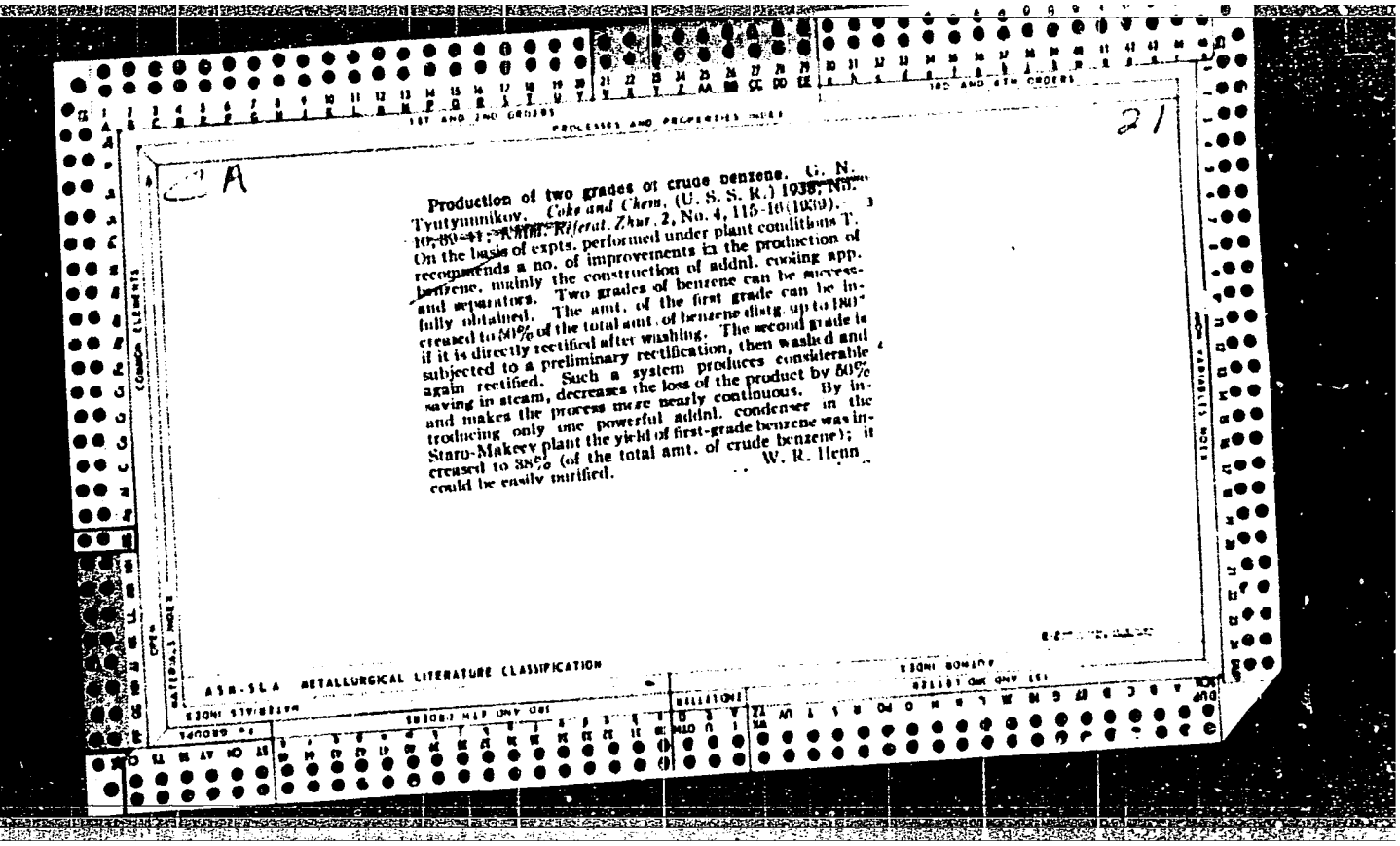


CA

21

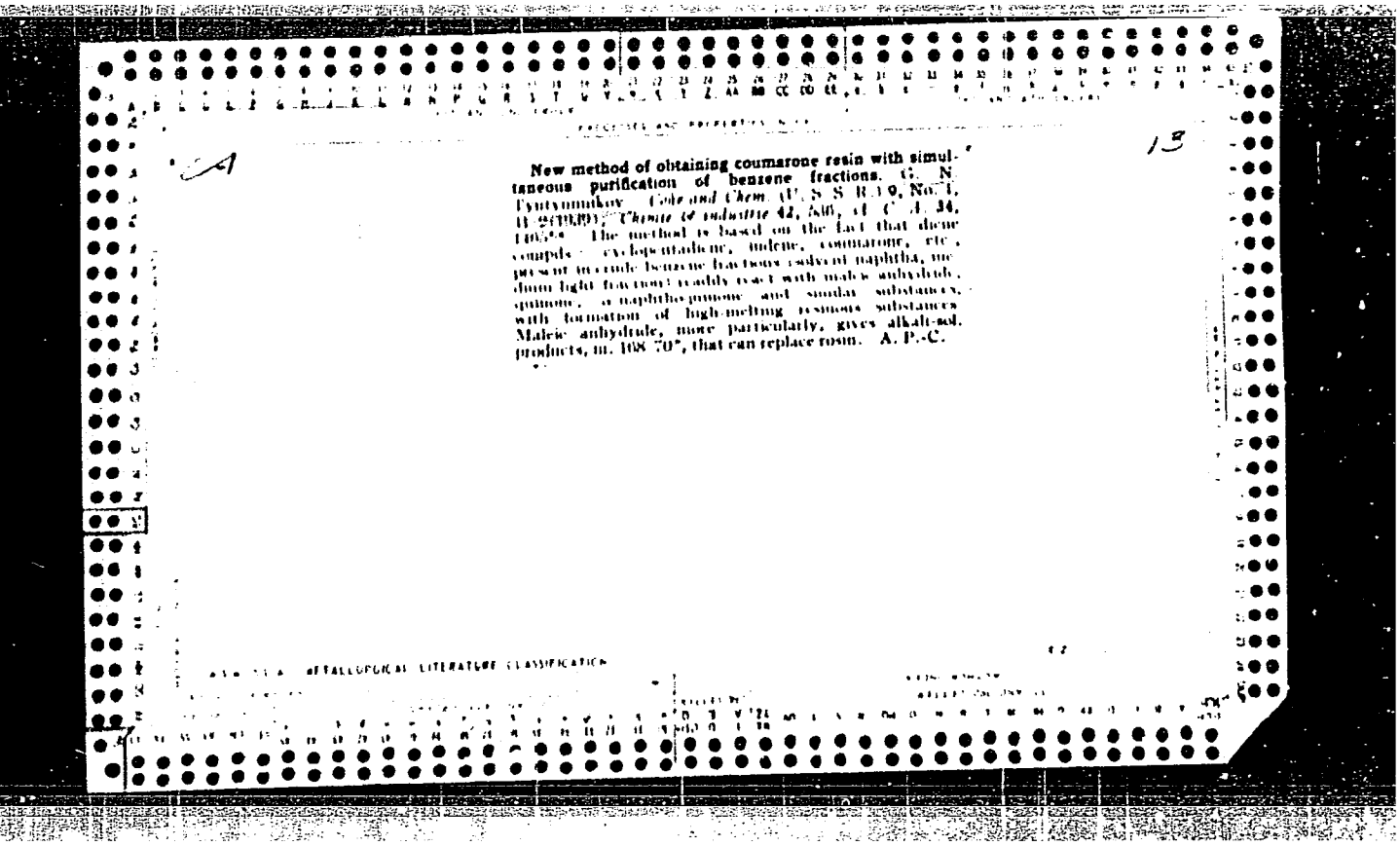
Errors in the method for the calculation of the yield of crude benzene to 180°. G. N. Tyutyunnikov and D. P. Dubrovskaya. *Coke and Chem.* (U. S. S. R.) 1938, No. 11, 47–8; *Khim. Referat. Zhur.* 2, No. 4, 115(1939).—The usual method for [illegible] calcn. of the yield of crude benzene by the lab. detn. [illegible] amt. of the distillate to 180° gives high results, owing [illegible] the wrong recalcn. of the vol. units to the wt. units. Deviations from the true values amount to 3% when coal-tar oil is used, and to 0.5–1.0% with solar absorption oil.

W. R. Henn

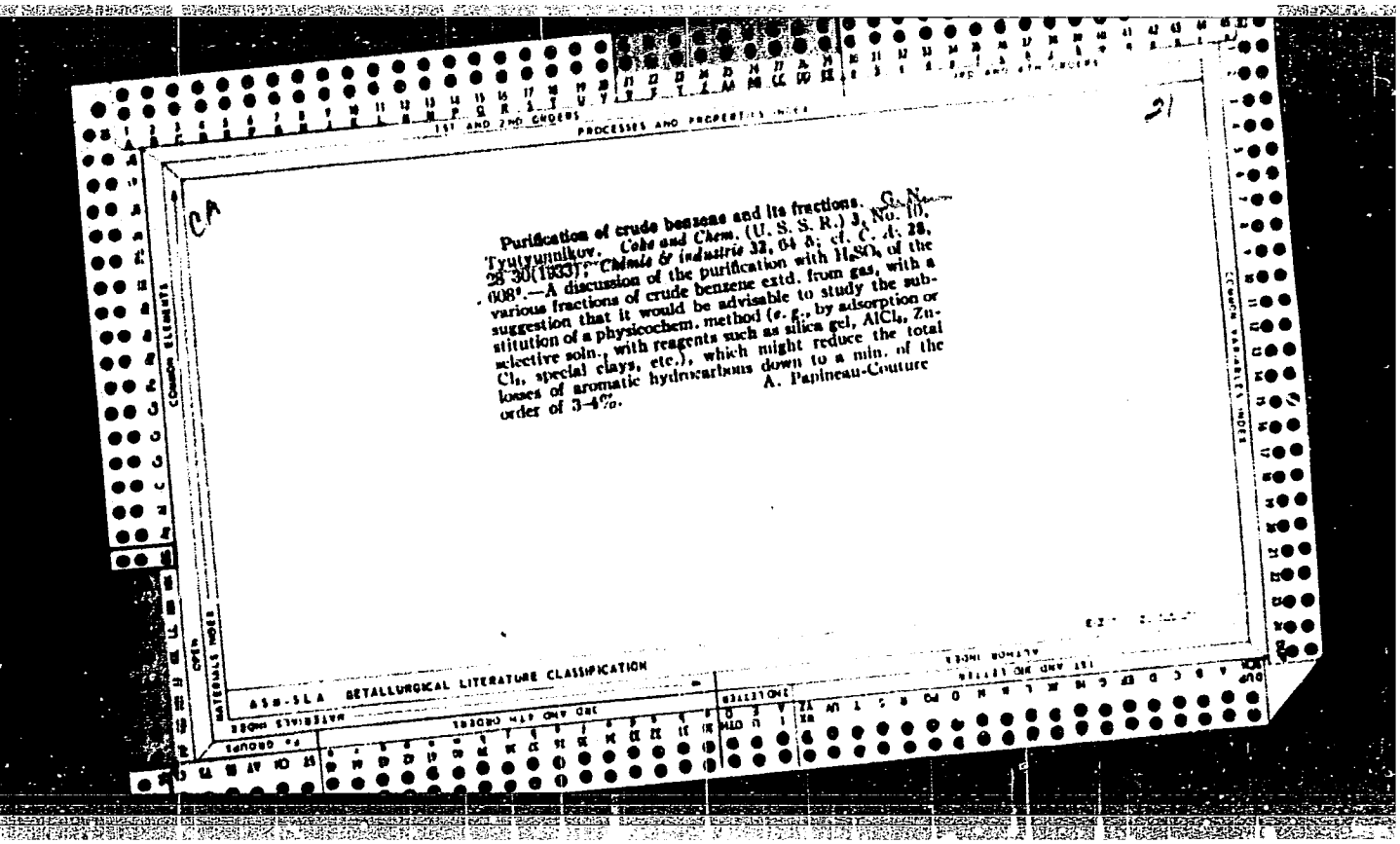


Production of two grades of crude benzene. G. N. Tyutyunnikov. *Koks and Chem.* (U. S. S. R.) 1938, No. 10, 40-41; *Chim. Réferat. Zhur.* 2, No. 4, 115-16 (1939). On the basis of expts. performed under plant conditions T. recommends a no. of improvements in the production of benzene, mainly the construction of addnl. cooling app. and separators. Two grades of benzene can be successfully obtained. The amt. of the first grade can be increased to 50% of the total amt. of benzene distg. up to 180° if it is directly rectified after washing. The second grade is subjected to a preliminary rectification, then washed and again rectified. Such a system produces considerable saving in steam, decreases the loss of the product by 50% and makes the process more nearly continuous. By introducing only one powerful addnl. condenser in the Staro-Makeev plant the yield of first-grade benzene was increased to 38% (of the total amt. of crude benzene); it could be easily purified.

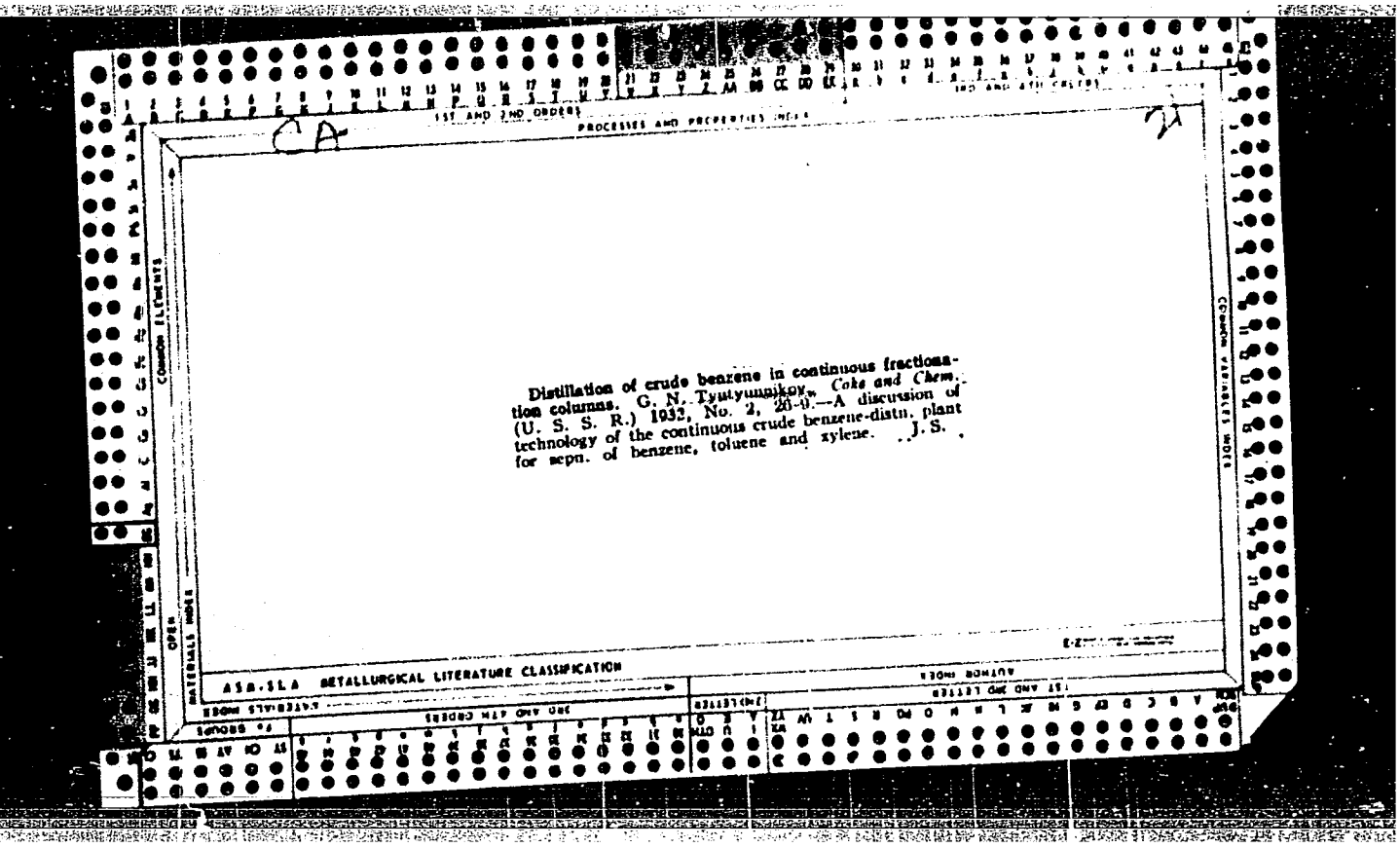
W. R. Henn

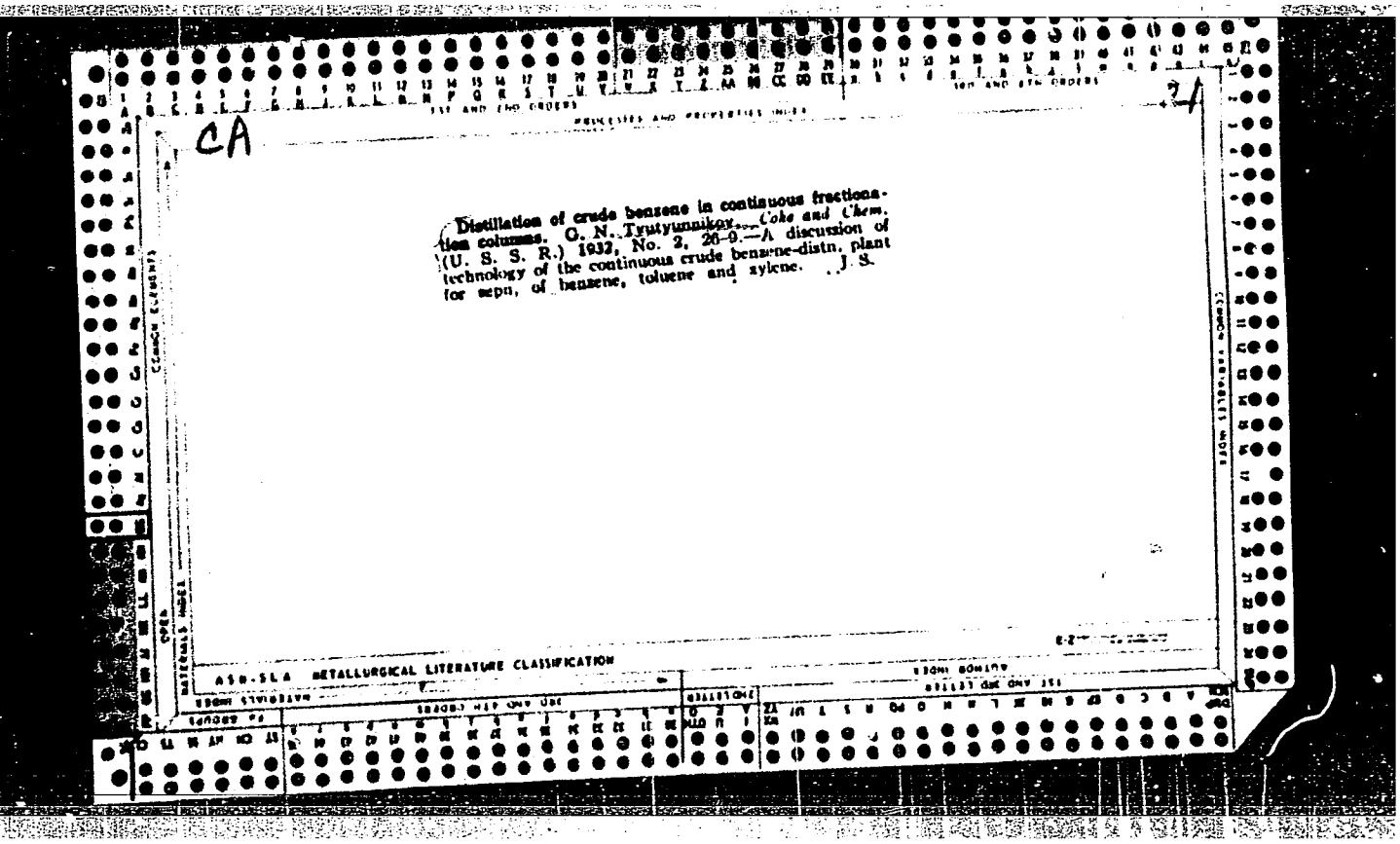


New method of obtaining coumarone resin with simultaneous purification of benzene fractions. G. N. Pyatyunnikov. *Coke and Chem.* (U. S. S. R.) 9, No. 1, 11-2(1939); *Chimie & industrie* 42, 340; cf. C. A. 34, 1105⁸. The method is based on the fact that diene compds., cyclopentadiene, indene, coumarone, etc., present in crude benzene fractions (solvent naphtha, medium light fraction) readily react with maleic anhydride, quinone, α-naphthoquinone and similar substances, with formation of high-melting resinous substances. Maleic anhydride, more particularly, gives alkali-sol. products, m. 108-70°, that can replace rosin. A. P.-C.



Purification of crude benzene and its fractions. G. N. Tyutyunnikov. *Coke and Chem.* (U. S. S. R.) 3, No. 10, 28–30(1933); *Chimie & industrie* 32, 64 A; cf. *C. A.* 28, 6089.—A discussion of the purification with H_2SO_4 of the various fractions of crude benzene extd. from gas, with a suggestion that it would be advisable to study the substitution of a physicochem. method (*e. g.*, by adsorption or selective soln.; with reagents such as silica gel, $AlCl_3$, $ZnCl_2$, special clays, etc.), which might reduce the total losses of aromatic hydrocarbons down to a min. of the order of 3–4%.
A. Papineau-Couture




CA

Distillation of crude benzene in continuous fractionation columns. O. N. Tyutyunnikov. *Coke and Chem.* (U. S. S. R.) 1932, No. 2, 20–9.—A discussion of technology of the continuous crude benzene-distn. plant for sepn. of benzene, toluene and xylene. J. S.

TYUTYUNNIKOV, I.

Students' day off. Prof.-tekh. obr. 12 no.4:28 Ap'55. (MLRA 8:7)

1. Direktor zheleznodorozhnogo uchilishcha No.2 (g.Krasnoufimsk Sverdlovskoy oblasti). (Technical education)

TYUTYUHNIKOV, I.

A growing friendship. Prof.-tekh.obr. 11 no 3:10 '54.(MLRA 7:8)

1. Pomoshchnik direktora po kul'turno-vospitatel'noy rabote zheleznodorozhnogo uchilishcha No. 2 (g.Krasnoufimsk). (Krasnoufimsk--Communist Youth League) (Communist Youth League--Krasnoufimsk) (Collective farms)

TYUTYUNNIKOV, I. A.

185T35

USSR/Engineering - Welding Mar 51

"Semiautomatic Welding With Interrupted Seam," I. A. Tyutyunnikov, Tech

"Avtogen Delo" No 3, p 27

Continuous-arc method is used at shipbldg plants for such work as welding of frame and stiffening ribs to decks. Welder, upon striking arc, finishes one tack weld and, by swift shifting of flux funnel, transfers welding operation to another place. Semiautomatic method is also applied for works requiring

185T35

USSR/Engineering - Welding (Contd) Mar 51

continuous joints under following conditions, for rapid process: current 250-300 a, arc voltage 30-32 v, electrode feed 130-140 m/hr, rate of welding 30-40 m/hr.

185T35

TYUTYUNNIKOV, I.A.

Further development of fisheries in Kzyl-Orda Province. Uch.-zap.Kazakh.un. 37 no.4:149-154 '58. (MIRA 15:4)
(Kzyl-Orda Province--Fisheries)

NEDRIGAYLOVA, O.V.; doktor med.nauk; TIUTYUNNIK, I.F.

Change in the lability of rabbit muscles under immobilization.
Ortop.travm.i protez. 20 no.4:50-55 Ap '59. (MIRA 13:4)

1. Iz Ukrainskogo nauchno-issledovatel'skogo instituta ortopedii i travmatologii im. M.I. Sitenko (dir. - chlen-korrespondent AMN SSSR prof. N.P. Novachenko).
(MUSCLES, physiol.
lability changes due to immobilization in rabbits (Rus))

TYUTYUNNIKOV, I.P.

Standardized reusable formwork spacers. Sbor.mat. o nov.tekh. v stroi 16 no.8:9-11 '54. (MLRA 7:9)
(Concrete construction--Formwork)

Tyutyunnikov, I. P.

Subject : USSR/Engineering AID P - 589

Card 1/1 Pub. 93 - 4/11

Author : Tyutyunnikov, I. P.

Title : Dismantable forms for openings to be left in reinforced concrete blocks

Periodical : Sbor. mat. o nov. tekh. v stroi., 8, 9-11, 1954

Abstract : If in concrete or reinforced concrete blocks such as foundation blocks, openings for bolts, pipes etc., must be left, specially designed dismantable wooden forms are suggested which after concrete hardening can easily be removed. Diagrams.

Institution: None

Submitted : No date

1. TYUTYUNNIKOV, N.; IL'IN, D.

2. USSR (600)

4. Sausage casings

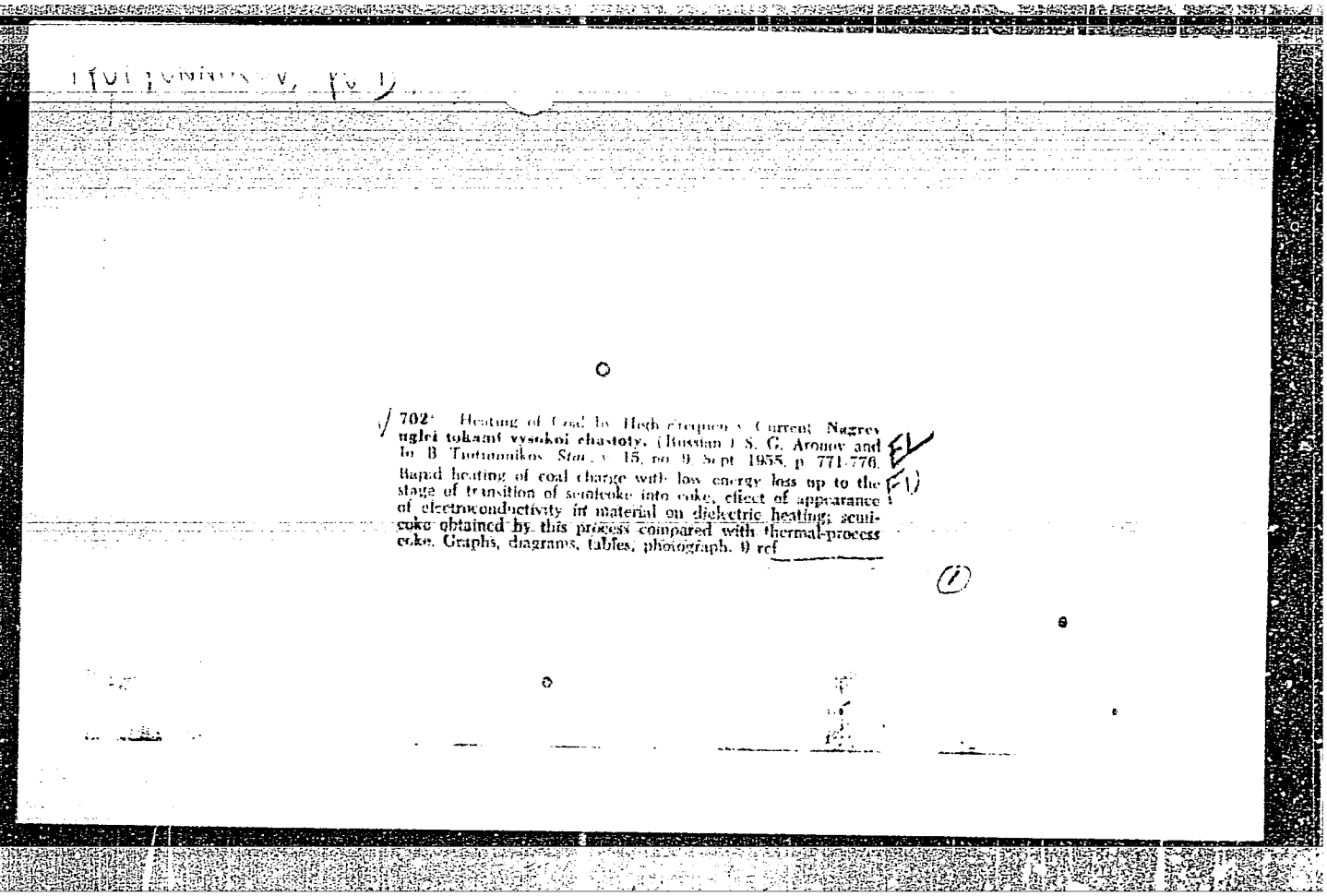
7. Progressive work practices in producing of casings., Mias.ind.SSSR, 23, No. 5, 1952.

9. Monthly List of Russian Accessions, Library of Congress, February 1953. Unclassified.

Tyutyunnikov, P.V

Installation of a continuous manufacturing process for household soap. B. N. Tyutyunnikov, P. V. Naumenko, and M. P. Bespyatov (Polytech. Inst., Khar'kov). *Maslobono-Zhirovaya Prom.* 21, No. 3, 23-5(1956).—Discussion with 3 diagrams of the continuous manufg. process for household soap. Vladimir N. Krukovsky

3



702. Heating of Coal by High-Frequency Current. Nagrev ugley tokami vysokoi chastoty. (Russian.) S. G. Aronov and Ia. B. Tuntunnikov. *Stal'*, v. 15, no. 9, Sept. 1955, p. 771-776. Rapid heating of coal charge with less energy loss up to the stage of transition of semicoke into coke, effect of appearance of electroconductivity in material on dielectric heating; semicoke obtained by this process compared with thermal-process coke. Graphs, diagrams, tables, photograph. 9 ref.

TYUTYUNNIKOV, L.N., inzh.

Improving installations for pneumatic concrete conveying. Stroi. i dor. mash. 10 no.1:30-32 Ja '65 (MIRA 18:1)

PIONTKOVSKAYA, M.A.; NEYMARK, I.Ye.; TYUTYUNNIK, R.S.; LUKASH, A.Ye.; LANTSOVA, M.A.

Properties of magnesium-substituted zeolite. Ukr. khim. zhur. 31 no.8:761-767 '65. (MIRA 18:9)

1. Institut fizicheskoy khimii imeni Pisarzhevskogo AN UkrSSR.

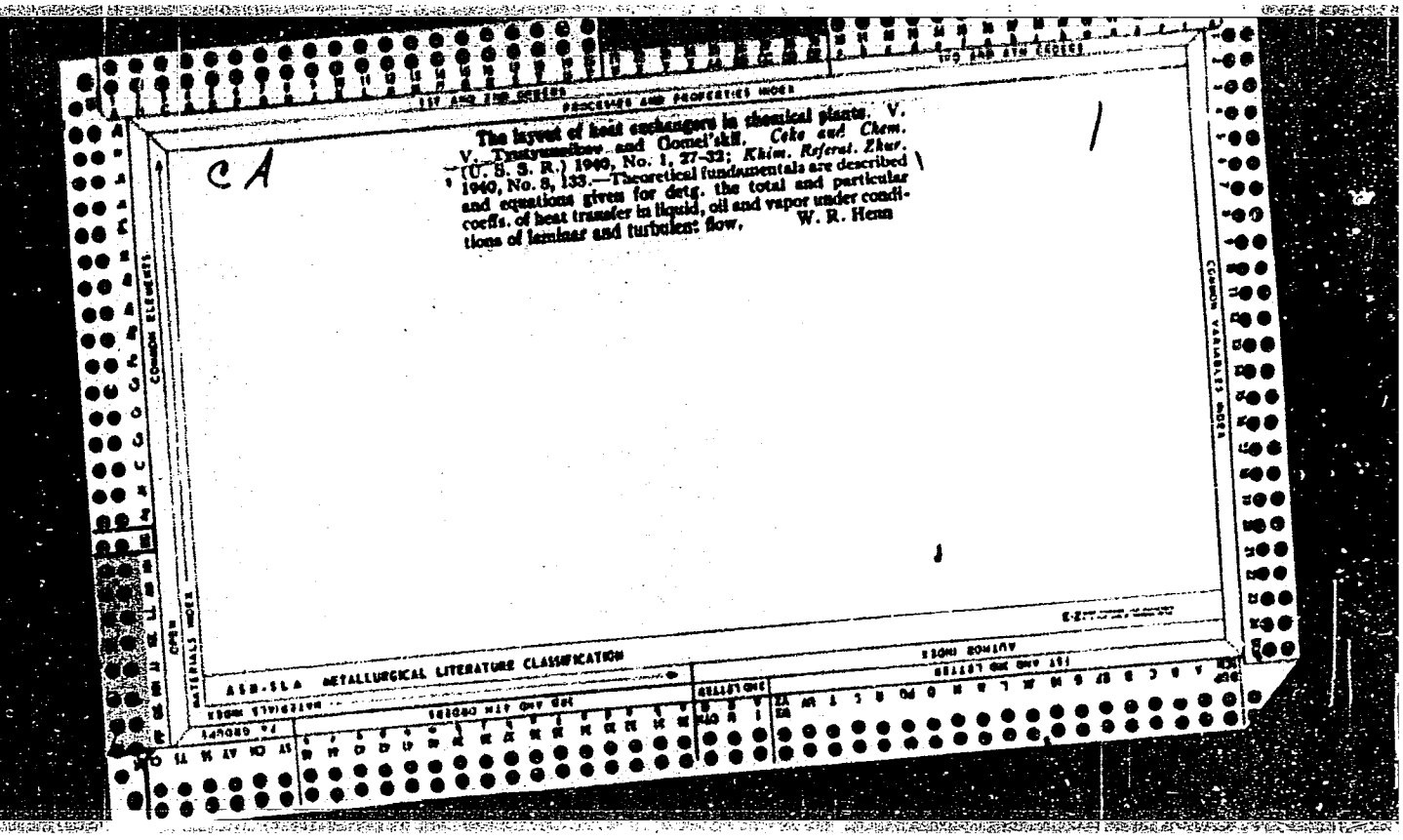
1. MAN'KOVSKAYA, N. K. and TYUTYUNNIKOVA, T. V.

2. USSR (600)

4. Paraffins

7. Non-saponifiable substances formed during the oxidation of paraffin. Masl.zhir.prom. 17 no. 5, 1952.

9. Monthly List of Russian Accessions, Library of Congress, February 1953, Unclassified.



CA

The layout of heat exchangers in chemical plants. V. Tsatsyumitsev and Chomel'skii. *Coke and Chem.* (U. S. S. R.) 1940, No. 1, 27-32; *Khim. Referat. Zhur.* 1940, No. 8, 133.—Theoretical fundamentals are described and equations given for detg. the total and particular coeffs. of heat transfer in liquid, oil and vapor under conditions of laminar and turbulent flow. W. R. Henn

TYUTYUNNIKOV, V.S., inzh.

Starting system of diesel engines for diesel locomotives with hydraulic drive. Trudy MIIT no.169:166-171 '63. (MIRA 17:6)

TYUTYUNNIKOV, Ya.; DOBRYNIN, A.

More attention to young specialists. Prom.koop.no.10:6-10 O '55.
(MIRA 9:4)

1.Zamestitel' nachal'nika Upravleniya kadrov TSentropromsoveta (for Tyutyunnikov).2.Nachal'nik otdela rukovodyashchikh kadrov TSentropromsoveta (for Dobrynin).
(Ukraine--Technical education)

MASLOV, Aleksey Vasil'yevich; GOLOKHOV, Georgiy Il'ich; KUROPATENKO, F.K., prof., retsenzent; TYUTYUNNIKOV, Ya.M., retsenzent

[Geodesy] Geodeziia. Moskva, Nedra. Pt.3. Izd.2., perer. i ispr. 1964. 185 p. (MIRA 18:1)

TYUTYUNNIKOV, Ya.M.

Land-use planning for rural settlements. Zemledelie 6 no.8:79-83 Ag '58. (MIRA 12:11)
(Land) (Farm management)

SKLYAR, Mikhail Grigor'yevich; TYUTYUNNIKOV, Yuriy Borisovich; ARONOV, S.G., doktor tekhn. nauk, retsenzent; NESTERENKO, L.L., prof., red.; TRET'YAKOVA, A.N., red.; TROFIMENKO, A.S., tekhn. red.

[Laboratory work in the chemistry of solid fossil fuels] Laboratornaia praktika po khimii tverdykh goriuchikh iskopaemykh. Khar'kov, Izd-vo Khar'kovskogo univ., 1962. 194 p. (MIRA 16:12)

(Chemistry, Technical--Laboratory manuals)

SMIRNOVA, I.S., kand. tekhn. nauk; TYUTYUNNIKOVA, V.A., kand. sel'skokhoz. nauk; KOZHEVNIKOVA, N.F., inzh.; BYKOVETS, A.G., kand. sel'skokhoz. nauk; DEBELYY, G.A., agronom

Treating seeds with high-voltage alternating current before sowing. Mekh. i elek. sots. sel'khoz. 21 no.1:33-36 '63. (MIRA 16:7)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut elektrifikatsii sel'skogo khozyaystva (for Smirnova, Tyutyunnikova, Kozhevnikova). 2. Nauchno-issledovatel'skiy institut zemledeliya tsentral'nykh rayonov nechernozemnoy polosy (for Bykovets, Debelyy).

(Electricity in agriculture) (Seeds)

VOYTSEKHOVSKAYA, I.A.; GOLUBEVA, L.A.; TYUTYUNNIKOVA, Ye.V.

Investigating the properties of alkali crystals; dielectric losses in KCl (Ba) crystals. Fiz. tver. tela 2 no.10:2536-2539 '60.
(MIRA 13:12)

1. Leningradskiy politekhnicheskiy institut imeni M.I.Kalinina.
(Potassium chloride crystals--Electric properties)

LITVINENKO, M.S.; TYUTYUNNIKOV, Yu.B.; VERSHININA, S.V.; DARIYENKO, V.I.; VOROB'YEV, D.D.; TKACHENKO, N.A.

Increase of the yield of coke-chemical products by the pyrolysis of heavy petroleum oils in coke ovens. Koks i khim. no.12:8-10 '60. (MIRA 13:12)

1. Khar'kovskiy nauchno-issledovatel'skiy uglekhimicheskiy institut (for Vershinina). 2. Gorlovskiy koksokhimicheskiy zavod (for Tkachenko).
(Coke industry--By-products)

SOV/68-59-9-9/22

AUTHORS: Tyutyunnikov, Yu.B. and Ulanovskiy, M.L.

TITLE: The Influence of the Composition of the Gaseous Heat Transfer Medium on the Properties and Quality of the Formed Fuel

PERIODICAL: Koks i khimiya, 1959, Nr 9, pp 27 - 32 (USSR)

ABSTRACT: The production of formed metallurgical coke by the IGI AN SSSR method (Ref 1) involves a rapid heating of crushed coal to a temperature at which it can be softened so that the formation of briquettes can be done at a low pressure. Gaseous heat transfer medium is most suitable for the purpose, as a good mixing of coal with the medium and thus a high heat transfer coefficient can be obtained. However, it was found on operating a continuous coking pilot plant that the nature of the gas used has a substantial effect on the plastic properties of coal and thus on the strength of the formed fuel. Moreover, the ability of coal to stick to the walls of the apparatus depends on the composition of the gaseous medium. For this reason an investigation of the influence of the composition of gaseous heat transfer medium on the properties of coals was carried out on a laboratory apparatus (Figure 1). Coals crushed to - 0.5 mm

The Influence of the Composition of the Gaseous Heat Transfer Medium on the Properties and Quality of the Formed Fuel

(properties - Table 1) were heated with the following gaseous heat transfer mediums: pure nitrogen, carbon dioxide, superheated steam, binary mixtures of carbon dioxide or nitrogen with additions of 1 to 3% of oxygen. Coals were heated to 20°, 260 and 350°C with the above gases. After cooling of the heated coals in an inert atmosphere their properties were tested. Changes in the hygroscopic moisture and volatile content of coals after this heating are shown in Figures 2 and 3 respectively, changes in the caking ability (Roga number) - Figure 4; changes in the maximum stress of deformation (sheer stress determined in a plasticity apparatus) - Figure 5; results of shatter tests of formed briquettes (dropping the briquettes 20 times from a height of 1.8 m and determining the amount of -25 mm fraction) - Figure 6; structural strength of briquettes (500 revolutions in a drum and determining the yield of -mm fraction) - Figure 7. It was found that changes in coal properties depend mainly on the amount of oxygen in the gaseous heat transfer medium. E.g., the hygroscopic moisture of coals heated to the same temperature depends

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on the amount of oxygen in the gas. Obviously due to oxidation reactions new micropores are formed. On heating low rank coals in an inert atmosphere from 200 to 350°C the hygroscopic moisture decreases, the reverse was observed for coals of a higher rank. On adding up to 1% of oxygen, an increase in hygroscopic moisture in all coals is observed. Thus by choosing an appropriate composition of the gaseous heat transfer medium and on heating to an appropriate temperature, the properties of coals can be modified in a required direction so as to obtain the neccessary mechanical strength of the briquettes.
There are 7 figures, 1 table and 7 Soviet references.

ASSOCIATION: UKhIN
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BELOV, K.A.; ZAYCHENKO, V.M.; ARONOV, S.G.; TYUTYUNNIKOV, Yu.B.; TSEPURIT, V.Ya.

Coking of Donets Basin gas coals of a large screen compostion. Koks i khim. no.12:10-13 '62. (MIRA 16:1)

1. Khar'kovskiy politekhnicheskiy institut (for Belov, Zaychenko).
2. Ukrainskiy uglekhimicheskiy institut (for Aronov, Tyutyunnikov, TSepurit).

(Donets Basin—Coal) (Coke industry)

MEDVEDEV, Konstantin Prokof'yevich; TYUTYUNNIKOV, Yu.B., otv.red.; BELINA, R.A., red.izd-va; KLEYNMAN, M.R., tekhn.red.

[Use of radioisotopes in coal chemistry] Primenenie radioizotopov v koksokhimii. Khar'kov, Metallurgizdat, 1963. 143 p. (MIRA 16:6)

(Coke industry--By-products)
(Radioisotopes)

NESTERENKO, L.L., doktor tekhn.nauk; SKLYAR, M.G., kand.tekhn.nauk;
TYUTYUNNIKOV, Yu.B., kand.tekhn

New methods for determining the caking capacity of coke and predicting its size composition suggested by P.K.Finkel'shtein and V.A.Prudenko. Koks i khim. no.4:17-20 '61. (MIRA 14:3)

1. Khar'kovskiy nauchno-issledovatel'skiy uglekhimicheskiy institut.
(Coal) (Coke)

NESTERENKO, L.L.; SKLYAR, M.G.; TYUTYUNNIKOV, Yu.B.

Considering the plastic state of coals as a colloidal system. Koks i khim. no.9:15-19 '60. (MIRA 13:9)

1. Khar'kovskiy nauchno-issledovatel'skiy uglekhimicheskiy institut.
(Coal)

S/068/60/000/012/001/005
E071/E435

AUTHORS: Litvinenko, M.S., Tyutyunnikov, Yu.B., Vershinina, S.V., Dariyenko, V.I., Vorob'yev, D.D. and Tkachenko, N.A.

TITLE: An Increase in the Yield of Coke-Oven By-Products by the Pyrolysis of Heavy Petroleum Oils in Coke Ovens

PERIODICAL: Koks i khimiya, 1960, No.12, pp.8-10

TEXT: The results of laboratory and plant experiments on the possible increase in the yield of gas and benzole on coke blends with additions of fuel oil are described. Laboratory experiments (no details given) gave the following indications: 1) Additions of fuel oil to coal increase the bulk density of the charge. 2) The yield of gas, raw benzole and tar is higher than from ordinary coal blends. 3) The distribution of fuel oil between coking products varies within wide limits, depending on the amount of fuel oil added and coking conditions. More oil is transferred to gas and benzole when oil additions to coal are small and the free space temperatures are high. Under such conditions, up to 63.35% of oil is transferred into gas and up to 10.7% into

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raw benzole, but the amount of tar formed decreases. 4) The composition of gas obtained on coking of charges containing fuel oil is characterized by somewhat increased content of hydrogen and unsaturated compounds. The composition of gas depends mainly on the degree of pyrolysis of the fuel oil vapours. 5) In all cases when additions of oil were made, a decrease in the formation of pyrogenic water was observed. 6) The quality of raw benzole and tar on coking blends containing fuel oil also depends on the conditions of pyrolysis. If the oil vapour suffered a high degree of pyrolysis, then in addition to an increased yield of benzole, the content of benzole fraction in the raw benzole was at a maximum (68.56%) and washing losses were only slightly higher than with benzole obtained from normal coal blends (from 6.5 to 7.5%). At low temperatures of the free space and other conditions being equal, the content of the benzole fraction in raw benzole decreased from 68.56 to 63.60% and washing losses increased to 10.79%. A further decrease in the degree of pyrolysis by decreasing the

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residence time of gases in the free space leads to a further increase in washing losses up to 13.53% and a decrease in the content of benzole fraction in the raw benzole to 63.3%. 7) The tar produced from oiled coal has a somewhat lower specific gravity, increased content of free carbon and an insignificant decrease in the content of phenols. 8) The mechanical strength of coke remained unchanged. Plant experiments were carried out on four batteries of ovens of the ПВР-46 (PVR-46) type. The temperature of the free space of ovens was comparatively low and varied within the following limits: No.1 battery 695 to 753°C; No.2 725 to 770°C; No.3 612 to 707°C and No.4 650 to 760°C. The coking time on No.1 and 2 batteries was 13 hours 36 minutes and on No.3 and 4 15 hours 25 minutes. Temperatures in the control flues: No.1 and 2 pusher side 1325°C, coke side 1375°C; No.3 and 4 pusher side 1235°C, coke side 1280°C. Addition of 2% fuel oil (types 80 and 20) was effected by spraying the blend on the conveyor belt leading to the service bunkers. Mixing of

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the blend was done by 6 disc ploughs placed under the conveyor. The composition and properties of the coal blend prior to and during the experimental periods are given in Table 1 (moisture 10%, volatile matter 26 to 27%, - 3 mm fraction 89 to 90%). The increase in the bulk density of the charge (from 740 to 751 kg/m^3) required higher flue temperatures, these were increased (by 10°C) insufficiently due to the poor state of the ovens. Mechanical properties of coke (Table 2) remained practically the same. There was some increase in the proportion of large fractions (above 60 mm) and in the volatile content of coke. The content of benzole in raw gas increased from 40.3 g/m^3 to 46.1 g/m^3 and with a uniform addition of oil of 2 to 2.5% to 48 to 50 g/m^3. The composition of scrubbed gas remained practically the same (Table 3) but its daily output increased from 1232 to 1286 thousand nm^3 (4.4%). Specific gravity of tar decreased by 0.017 and the yield of its light fraction increased by 0.4%. The composition of tar from primary condensers somewhat changed: its specific gravity

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increased by 0.015 and the yield of light fractions decreased by 0.9%. Washing losses of benzole increased by 0.47%, its specific gravity decreased from 0.875 to 0.872; the content of the benzole fraction decreased from 68.33 to 67.35%; the content of toluol increased from 15.06 to 15.83%. 9.22% of the fuel oil added to coal was transferred into raw benzole, 37.2% into gas and 16.04% into tar. It is concluded that in order to increase the output of gas, benzole and tar additions of fuel oil to coal are recommended. The proportion of fuel oil which can be added should be established for each individual works. The following participated in the work: V.Ya.Tsepurit, A.V.Shepel', F.A.Pilyasov, L.A.Vashchenko, S.D.Brodskiy, M.I.El'yashev, G.S.Iskra, Ya.D.Semisalov, S.P.Kalganov, I.I.Mikhaylov, M.T.Petrenko, and A.Ya.Val'skiy. There are 3 tables and 1 Soviet reference.

ASSOCIATIONS: UKhIN Litvinenko,M.S.,Tyutyunnikov,Yu.B.,Vershina,S.V.; Gorlovskiy koksokhimicheskiy zavod (Gorlovka Coking Works) Dariyenko,V.I., Vorob'yev,D.D., Tkachenko,N.A.

Tyutyunikov, Yu. B.

68-6-3/19

AUTHOR: Tyutyunikov, Yu.B., Candidate of Technical Sciences.

TITLE: Experimental Coking of Blends Containing 40% of the Donets Gas Coals on an Industrial Scale. (Opytno-promyshlennoye koksovaniye shikht s uchastiyem 40% donetskikh gazovykh ugley)

PERIODICAL: Koks i Khimiya, 1957, No.6, pp. 10 - 12 (USSR)

ABSTRACT: In 1949 and 1955, UkhIN together with the Ukrainian Institute of Metals (Ukrainskiy Institut Metallov) carried out an experimental production of coke from blends containing 30% of the Donets gas coals (Table 1). In the present investigation, the influence of coking velocity, final coking temperature and replacements of some coal types of one technological group for another one were studied. Experimental coking was carried out in ovens of the system "Giprokoks NPN 49-407" by G.N. Arkhipov, N.F. Koziy, A.M. Litvinov and E.S. Serik. The composition and properties of experimental blends, coking conditions and the quality of the coke produced are given in Tables 2 and 3. The coking velocity was varied in two ways: a) by varying coking time at the same final temperature in the tar line (experiments 1, 2 and 3); b) by varying final temperature reached in the tar line at the same coking time (experiments 2 and 4). It was established that with the final temperature in the tar line of 1 000 °C blending of coals

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Г1, and Ж 2, Г 2 and Ж 1 gives an unfavourable result - the mechanical strength of coke decreases. A decrease in coking velocity of a blend containing: 40% Г, 30% ГЖ and 30% ГС from 15.8 to 12.8 mm/h has no practical influence on the results of the drum test of the coke. The mean size of coke obtained under these conditions increases with decreasing coking velocity. Optimum conditions for coking the blend of the above composition: coking time 14 hrs, final temperature in the tar line - 1 100 °C. It is stated in the editorial note that the evaluation of the quality of the coke produced from blends containing 40% of the Donets gas coals should be considered as a preliminary one pending the results of blast furnace tests. There are 3 tables.

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